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THE SUGAR-FED CHILD.*

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Sugar products are the cheapest, most abundant and most palatable forms of food. They have their uses in that they are readily soluble, and by metabolic processes in the human body, are converted into heat and energy. The excessive use of sugar, however, particularly in children, is the most serious dietetic error of the present day. Statistics shows that the per capita consumption of sugar in the United States has increased more than 500 per cent in the last half century, from 23 pounds per capita in 1870 to 120 pounds in 1926. In other words, every man, woman and child in the United States eats on an average one-third pound, about a tea cup full, of sugar a day. If this change in our dietary habits is a direct, or indirect, cause of disease, it is high time that the medical profession consider the question seriously; and give the laity the facts, because it is only through an enligthened public opinion that the perverted appetite of a nation can be corrected.

Concomitant with the unprecedented consumption of sugar, cane syrup and corn syrup has been an enormous increase in the use of white flour, white meal, white rice, commercial breakfast foods, white potatoes, margarin butter, meats, and coffee, which are devoid of vitamins, while the family garden, orchard, dairy and poultry yard that were formerly a part of every farm, and which supplied the protective foods required for perfect nutrition, are rapidly passing. Sugar saturated, vitamin starving America presents a problem which may be approached through a study of the sugar-fed child, with the idea that an ounce of prevention in the infant is worth more than the proverbial pound of cure in the adult.

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THE SUGAR-FED CHILD.

To the physician, who knows something of the recent advances in the science of nutrition, and who studies cause and effect in treating his patients, the sugar-fed child is one of the saddest sights in the world. Such a physician knows that the petted and pampered child who indulges in the excessive use of sweets will not drink a sufficient amount of milk, or eat enough eggs, fruits and vegetables, to provide the needed fats, proteins, minerals and vitamins for perfect nutrition. He therefore knows that the sugar-fed infant often becomes rachitic, and is prone to colitis and other infections; and that if he survives the diseases of infancy he becomes the pale, weak undernourished child; or the fat, flabby, indolent and self-indulgent adolescent. Likewise, the thinking physician knows that his adult dyspeptic, diabetic, or obese patient with heart, kidney, or vascular complication, is often the grown up sugar-fed child.

Verily, the child that is born in sugar-saturated America is "of few days and full

of trouble." Soon after his arrival in this "vale of tears" he is fed sugar by his fond parents, so that his taste becomes perverted during the first days of his existence. By the time he is one or two years old he is a confirmed sugar habitue, and demands that sugar be thick on his oatmeal and bread; and he will not drink milk unless it is thoroughly sweetened. He has syrup and cakes for breakfast, and sugar-saturated desserts for dinner and supper, like the rest of the family. He is fed candy and soft drinks between meals by kind friends of the family, until the life of the average child consists of eating and drinking one sweet after another. Of course some parents recognize the harmfulness of giving their children too much sweets, but with a grocery store and soft drink stand on every block, where the boys and girls of the community congregate, even if children are properly fed and carefully trained at home, they form the sugar habit in their early years.

"The man is but the grown-up child" and harmful eating habits formed in childhood become fixed in early manhood; and the average adult in America consumes about ten times more sugar than is needed for nutrition. This excess of a soluble carbohydrate ferments in the stomach and intestines, forming gas and acid products that not only are responsible for many functional digestive disturbances; but patients with ulcer of the stomach or duodenum, chronic gastritis, gall bladder infections and other abdominal diseases give a history of excessive indulgence in sweets too often for it to be a mere coincidence.

WHY IS THE EXCESSIVE USE OF SUGAR HARMFUL?

Sugar taken on an empty stomach is rapidly digested and absorbed and is capable of being converted into energy very quickly before fermentation can take place. Its best use, therefore, is between meals for athletes and laborers who need a rapidly assimilable carbohydrate. Sugar in that way prevents fatigue, increases muscle strength and spares tissue metabolism.

When sugar in any form is taken with meals it remains for several hours in the stomach, thus favoring fermentation; and the greater the amount of sugar ingested the more active the fermentation process. Cane or beet sugar in solution is a favorite pabulum for the fermentative bacteria, which produce gas and irritating organic acids (lactic and butyric acids) in the stomach and intestines.

Unquestionably many of the digestive disturbances both in children and in adults result from the fermentation of sugar products in the gastro-intestinal tract. This is proved clinically by the fact that many adult patients who complain of gastric hyperacidity, flatulency, constipation, or diarrhea, give a history of the ingestion of excessive quantities of sweets; and in many such patients all that is needed to relieve the symptoms is to eliminate sugar products from their diet.

SUGAR IN INFANT FEEDING.

One of the harmful results from the consumption of too much sugar products is that they satiate and destroy the appetite for other more wholesome food. Pediatricians have learned that the best and quickest method to restore appetite in the capricious, irritable, undernourished child is to eliminate sugar entirely from the diet; and they are realizing more and more the seriousness of the increasing consumption of sugar among children. Some pediatricians, however, are not entirely blameless in creating the craving for sweets in infants because of their tendency to use more cane sugar in modifying milk, particularly among poor children whose mothers cannot provide them with breast milk. The fact that cane sugar is cheap and always available, and that milk sugar is expensive and more difficult to obtain makes it easy for physicians to prescribe it as a milk modifier, without thinking of the dangers of forming the cane sugar habit in the child.

Since milk sugar is less sweet and milk modified with it tastes more nearly like whole milk, thus accustoming the child to use the most nearly perfect article of food that can be found for children, is sufficient reason to make milk sugar the most desirable soluble carbohydrate for infants; even if there is nothing in the claim that lactose ferments less readily than sucrose or saccharose and that the end products derived from the fermentation of milk sugar are less harmful than those derived from cane sugar fermentative processes.

There is a growing tendency to use glucose (corn syrup) as a milk modifier instead of milk sugar. It would seem that the same objections which apply to cane sugar would also apply to Karo syrup as a milk modifier, though glucose is less sweet than sucrose. Milk sugar probably contains vitamin B, while white sugar and corn syrup have no vitamin content.

The use of corn syrup, or glucose derived from any other source in threatened or actual acidosis may be justifiable for a few days at a time, though pure honey, which consists largely of levulose and glucose and is a natural food, containing vitamin B, would seem to be the best source of carbohydrate for use when needed for combatting acidosis in children. The possibility of manufactured glucose (corn syrup, etc.) containing impurities should also be considered in using it in infant feeding. There can be no doubt but that Dr. Harvey W. Wyley had just reasons for his strenuous objections to the use of glucose as an adulterant of candy and other foods.

Condensed milk and other proprietary milk products containing a large amount of cane sugar will fatten an infant, but clinical experience has shown that children fed on condensed milk are less resistant to infections than those fed on fresh cow's milk modified with milk sugar or maltose.

VITAMIN DEFICIENCY PREDISPOSES TO INFECTONS.

Probably the harmfulness of eating an excess of sweets lies most in the fact that the sugar-fed child, or the adult sugar habitue, lives on a diet that is deficient in vitamins that protect against various infections. He lives largely on white bread, white potatoes, white rice, white sugar products, lean meats and coffee or tea. The child or the man who consumes a great deal of sugar rarely eats enough vegetables, fruits, or milk products that are rich in vitamins and which contain the minerals needed for perfect nutrition. In other words, he lives on what has been called "devitalized" foods, on which laboratory animals will starve or develop varied infections.

The observations and experiments of McCarrison seem to offer an explanation of why the sugar-fed child is more susceptible to many infections that one who lives on a well balanced diet. It is but just to say, however, that McCarrison's investigations seem to prove what Deeks has believed for a quarter of a century: that lowered resistance from an unbalanced diet predisposes to many infections.

McCarrison, a British Army Surgeon, stationed in a remote region of the Himalayas, was impressed by the rugged health and longevity of the inhabitants whom he treated, though they lived under most unsanitary conditions. He said: "During the period of my association with these people I never saw a case of asthenic dyspepsia, of gastric or duodenal ulcer, or appendicitis, of mucous colitis, or of cancer, though my operating list averaged 400 major operations a year." In his investigations as to the cause of this remarkable freedom from abdominal diseases among the primitive Himalayans, he was convinced that the use of "natural foods—milk, eggs, grains, fruits and leafy vegetables"—protected them against infection.

McCARRISON'S EXPERIMENTS.

McCarrison's classical experiments seem to prove that foods of low vitamin value and deficient in certain mineral substances, if used over long periods of time, predispose

to infections of the gastro-intestinal tract. He also called attention to the effect of an improper diet on endocrin function. He placed 36 healthy monkeys in two separate cages—12 were fed on natural foods, and 24 on foods excessive in carbohydrate content, deficient in vitamins, and lacking in various mineral substances. Of the first group all remained healthy and free from intestinal disease, while a majority of those fed on unbalanced and deficient diets developed diarrhoea and actual dysentery.

McCarrison is of the opinion that vitamin B and C serve to protect the gastro-intestinal tract from infections; and that the deleterious effects of a deficiency of these vitamins is enhanced when the food is improperly balanced, particularly when associated with an excess of carbohydrates. Again quoting from McCarrison: "Impairment of the protective resources of the gastro-intestinal mucosa against infecting agents may be due to hemorrhagic infiltration, to atrophy of the lymphoid cells, and to imperfect production of gastro-intestinal juices. This impairment not only results in infections of the mucous membrane itself, but also permits of the passage into the blood stream of micro-organisms from the bowels."

McCarrison showed, by illustrations of sections of various parts of the intestines, that all these changes occur in animals which have been fed on diets poor in vitamins and with an excess of carbohydrates. He claims that "diarrhea, dysentery, dyspepsia and gastric dilatation, gastric and duodenal ulcer, colitis, and failure of colonic function can be produced experimentally by means of feeding animals on faulty food." He does not claim that the faulty diet is the only cause of these gastro-intestinal conditions, but insists that pathogenic organisms are contributing factors. As proof that a faulty diet lowers resistance to infections, McCarrison fed healthy monkeys on entameba histolytica and failed to infect any of them; while those fed on a deficient diet became readily infected when given the entameba histolytica organisms.

The pure carbohydrate diet that McCarrison fed to monkeys which resulted in various abdominal lesions due to infections by pathogenic microorganisms is only a little less restricted than the white bread, cereal, potato, sugar diet that is eaten by a large proportion of the people of the United States. It is a significant fact that more than 25 per cent of patients admitted to American hospitals suffer from medical and surgical diseases of the abdomen; and no doubt the excessive use of sugar is a factor of importance in predisposing to colitis, appendicitis, ulcers of the stomach and duodenum, and gall bladder, liver and pancreatic infections.

THE RELATION OF SUGAR TO MOUTH INFCTIONS.

The child with a "sweet tooth" grows up to become the toothless middle aged man or woman. No one who knows anything of the bacteriology of dental caries can doubt that the acid fermentation between the teeth and at the edges of the gums in the mouth of those who eat and drink sugar products will in time cause decayed teeth. No doubt pyorrhoea, Vincent's angina and other oral diseases are likewise more frequent in the sugar habitue, not only because of the local irritating effects from carbohydrate fermentation; but because the sugar saturated child or man lives on a diet which is deficient in the antiscorbutic vitamin, the predisposing cause of mouth infections.

Probably one of the reasons why the young people of this day have such poor teeth and have so many dental deformities is that the sugar-fed child's diet is not only deficient in vitamin D, but also in calcium and phosphorus, which are necessary for the ossification of the teeth and bones. McCollum in his experiments on animals produced all kinds of deformities of the teeth and bones by depriving them of vitamin D and calcium and phosphorus. In other words a diet such as the average sugar-fed child lives upon will produce rickets with various dental abnormalities.

McCollum has also demonstrated by feeding laboratory animals on deficient diets that the quality of the teeth of the offspring depends upon the mother's being properly nourished. The infant of the sugar-saturated human mother is therefore likely to be born with defective tooth buds, and the teeth which are developed from them are further impaired by a deficient diet in the growing child. We shall have to change the eating habits of mothers as well as of their children if we would save the teeth of the coming generation.

DEEKS' INDICTMENT OF SUGAR.

Deeks, formerly Chief Physician to Ancan Hospital on the Canal Zone, and who has been at the head of the Medical Department of the United Fruit Company for many years, has written many articles calling attention to the harmfulness of the excessive use of sugar products. In a recent monograph entitled, "Diet and Disease," Deeks gives a very plausible explanation of the deleterious effects of a high carbohydrate diet, with particular reference to the end results from the fermentation of cane sugar in the stomach and intestines. The following excerpt from his article is worthy of consideration by thinking physicians:

"When fermentation takes place through the action of bacteria, not only gasses are liberated, but other products are formed, some of which are toxic in character. The nature of the fermentative process can be very well illustrated by a consideration of the action of yeast upon grape-sugar. As the yeast cells grow and multiply, the sugar is converted into alcohol and carbon dioxide. Other organisms by means of their ferments produce lactic, butyric acids, etc., from sugars."

"As products of fermentation in the digestive tract, there is not only the formation of gas, but other products as well, which are toxic and irritating. The gasses formed are eliminated by eructations from the stomach, or through the rectum; or by the lungs if obsorbed into the circulation. The other products, however, resulting from the action of bacteria are soluble and absorbed into the circulation, whence they must be excreted. When these are very irritating or toxic, they produce lesions in tissues, not only where they are locally formed in the alimentary tract, but also while circulating in the blood and while they are being excreted by the kidneys, skin and lungs."

"Some toxic products are selective for tissues after the manner of the selectivity of toxic products of pathogenic bacteria. Certain authorities believe that some of the fermentative products are selective for fibrous connective and other specialized tissues, which they irritate. Irritation of tissue is frequently associated with pain and usually means lowered resistance to the invasion of bacteria, some of which are more pathogenic than others. As fibrous connective tissue is the supporting and binding element of the cells and is present in all tissues, any toxin affecting it is likely to produce symptoms which may be referred to any part of the body. When toxic products are absorbed into the circulation, their concentration and effects will be localized where there is the greatest physiological determination of blood or lowered resistance from any cause. In sufferers from rheumatism, the limb doing the most physiological work is usually most affected; and because of lowered resistance due to exposure, draft, or injury, symptoms are likely to follow in the location exposed. From similar causative factors morbid lesions vary in different individuals, influenced by age and idiosyncrasy. A child is more likely to suffer from bronchitis, irritable bladder, and endocarditis; a grown person from rheumatic pains, lumbago, arthritis, neuritis, pleurisy, headaches, etc. Personal idiosyncrasy, chemotaxis, and selective bacterial affinities generally determine the location of morbid processes. Influenza produces in different individuals symptoms referable to the nervous, diges-

tive, respiratory or excretory systems respectively; so will the products of fermentation."

"Of the different forms of carbohydrates, saccharose is considered the most fermentable. It undergoes no change in the stomach, as there is no ferment to handle it before it reaches the intestine, where it is acted upon by invertase, converting it into dextrose and levulose. When saccharose is taken with a full meal and the stomach is not emptied for several hours, owing to its proneness to be acted upon by fermentative bacteria, it becomes converted into irritating organic acids or toxic products, which are diffusible and absorbable. Because of their irritating properties, they stimulate locally over-secretion of the gastric glands, and hyperacidity results. If this action is continued over long periods of time, the gastric glands become exhausted from over-stimulation and anacidity results. The stomach functions are changed from that of a digestive organ to that of a fermentative food-containing sac. Saccharose is undoubtedly a very useful, quickly available, muscle food, if taken on an empty stomach or from three to four hours after a meal. If, however, it is taken with a bulkly meal in artificially sweetened foods or drinks, fermentative bacteria may attack it and other carbohydrate foodstuffs before they can leave the stomach, and the effects are manifested in a variety of ways."

"It may be concluded, therefore, that any tissue or group of tissues in the body can be affected as a result of excess carbohydrate consumption of (1) its proneness to fermentation with the development of gaseous and toxic products, and (2) the deficiency of inorganic mineral salts and vitamins.'"

"Among the symptoms, symptom-complexes, and organic diseases which necessitate careful investigation in regard to the quantity and nature of the carbohydrate content ingested may be mentioned: Periodical headaches including migraine, stomatitis, chronic pharyngitis, dental decay, spongy bleeding gums, focal infections, flatulent and acid dyspensia, gastric ulcer, appendicitis, constipation, diarrhea, skin manifestations, such a furunculosis, eczema, acne, psoriasis, and alopecia of certain types; rheumatic phenomena, including neuritis, lumbago, torticollis, dysmenorrhea, arthritis, endocarditis, etc., other conditions of undetermined etiology may be mentioned, such as the development of gall, kidney and bladder calculi; arteriosclerosis, chronic interestitial nephritis, retino-choroiditis, ulcerative keratitis, etc."

"In children, the symptoms of those using excessive amounts of sweet and starchy food are characteristic. Fickle appetites, irritability, restlessness, lustreless hair, eneuresis, recurring bronchitis, hypertrophic tonsillitis, eczema, endocarditis, etc."

"It is not claimed that the excessive use of carbohydrates and the absorption of the fermentative products are the only factors involved in the above mentioned conditions. When people consume an excessive quantity of acid ash producing foods, like meats and the cereal derivatives, which are generally devoid of vitamins and deficient in inorganic salts, they are taking insufficient amounts of the foods belonging to the group of green vegetables and fresh fruits, which are the main supply of vitamins and alkaline inorganic salts. The inadequacy of vitamins, as well as an improper relationship or quantity of inorganic salts, undoubtedly plays important roles in the production of morbid conditions, either in predisposing to acute infections or organic tissue degenerations. However, the consumption of excessive amounts of the fermentable sweet and starchy foods in an important dietetic error that has not been sufficiently stressed. Though dietetic errors may be transgressed without impunity over certain limited periods of time, sooner or

later morbid processes insiduously ensue. Recurring headaches, premature tooth decay and digestive disturbances of all kinds should be warnings to an individual that the food he has been in the habit of ingesting is not being properly metabolized, and steps should be taken to balance his diet, restricting it to those quantities and combinations of foods or classes of foods which he can handle with impunity."

EDUCATION THE REMEDY.

Thomas Jefferson said: "The present generation is already lost. Let us educate the youth of the country," so he founded the University of Virginia, and he considered his contribution to education as his life's greatest work. The "father of democracy" was almost right; because it is difficult for adults who have been eating excessively of sugar products all their lives to realize that overweight which will surely shorten life, comes largely from the excess of sugar that is converted into fat. The adult, however, can be taught that sugar in any quantity need not be given to a child under one year of age; and that it should be eaten sparingly by children of all ages, because many of the ills of childhood have for their direct, or predisposing cause, the unnecessary sugar habit.

Progress is being made in teaching children the simple principles of nutrition both by text book instruction and by various nutritional clinics and studies in the public schools. For instance, it was found that 20 per cent of the school children of Massachusetts are undernourished. No doubt the children in other states fare no better, and often it is the child of wealthy parents who suffers most from faulty eating habits.

Educators are awakening to the fact that the undernourished child, in whom the excessive use of sugar is usually a contributing factor, accomplishes less than his well nourished deskmate, and that, as the child becomes better nourished, his class standing improves. It would be interesting to compare the class standing of the sugar saturated children of a school with that of those who live on a well balanced diet.

The sugar-fed child is really a public health problem, as much so as the tuberculous infant, and health officers and welfare nurses should educate the public regarding the harmfulness of the excessive use of sweets, just as they have done in their campaigns against the communicable diseases of childhood. The parent-teachers' associations should see to it that school children are taught proper eating habits; and that they are not tempted every hour in the day to eat candy or drink soda water and other sweet drinks. The so-called cola drinks are particularly harmful, not only because they contain too much sugar, but their popularity depends upon the habit forming drug, caffeine, which it contains, that is particularly deleterious to the health of children. The health officer of one of the rural counties of Alabama informed me recently that 60 per cent of the children in one of the schools admitted the more or less regular use of the most popular of the cola drinks.

Likewise, the medical profession should study the harmful effects of the excessive consumption of sugar by person of all ages and physicians everywhere should do their part in teaching the public the facts that they know regarding diet and nutrition.

The most important problem in this land of sweets is to teach all people of all ages the dictum of McCollum's perfect nutritional day, *i. e.*, that each normal person from childhood to old age should drink from a pint to a quart of milk, and eat one raw fruit, one raw vegetable and two cooked leafy green vegetables each day. After that he may eat a reasonable amount of meat once a day, one or two slices of bread, preferably made of whole wheat flour or country-ground corn meal, with butter at each meal, and then a light dessert—ice cream, sherbet, or fruit at

one meal. When the known facts regarding nutrition are learned and practiced by all the people, in a few generations we shall have a race of super men and women in fortune-favored America.

DISCUSSION.

Dr. W. A. Dearman (Gulfport): I was unfortunate in getting in too late to hear the caption of Dr. Harris' paper, but his papers are always pregnant with ideas that are fundamental and worth while.

The health departments are directing attention to the teeth of the sugar-fed child who is inducted into the habit by its parents. I am afraid we do not take into consideration the value of the fundamentals that have been laid before us by dentists who understand this condition, nor do we put them into practical relationship with deficiency diseases.

In days past and gone, with reference to typhoid, the patient was instructed to live on chicken broth and nothing else. He came out a human wreck, emaciated, pale, and weak, and his chances for recovery very much embarrassed. We find now that since we have acquired ideas that have been worked out on a scientific basis, we can bring the patient through the entire course of typhoid from the incipiency to the end of convalescence with practically the same weight that he had at the time he went to bed. That is a capital achievement in the treatment of this treacherous and most formidable condition that once was a scourge to our people of the United States. I have always been afraid to advise as to diet. I am afraid we find too many of our physicians who know very little of diet and the food values. I used a diet, long, long ago, figured out on the basis that there was starch in potatoes—that they contained 100 per cent starch—that it was in rice, and in turnip greens. That isn't true. Diabetics are big sugar eaters, starch eaters, and their lives are cut short. Too many doctors find patients who are too stout, and some under-nourished. Some of my patients were insulted when I said they were under-nourished. I practiced medicine before I had any scales in my office. We paid no attention to over and under weight, but now it is the most important thing, and it is a very easy matter for any doctor in a practical way to treat a profound diabetic in a small town or rural district by paying close attention at least to some of the fundamental principles of food values.

Dr. Seale Harris (closing): I appreciate Dr. Dearman's discussion. He always says something that you can carry home with you and put to profit. He is one of the most practical men I know of. He spoke of the question of bad teeth, particularly in children. The deficiency of teeth is due very largely to a deficiency diet—bad teeth in infected mouths and gums. McCollum by dieting rats was able to produce almost any deformities in teeth, and of course various other deformities, by simply giving them a diet without vitamin D, contained in milk and eggs. That diet is also deficient in calcium and phosphorous. If you will study the diet of the average child—the infant—you will see that when the child is given a little sweet he won't drink enough milk—he won't eat vegtables, and many of them will not take eggs. Therefore, their diet is deficient in vitamin D, in calcium and phosphate, and it is almost as certain as the sun rises, that the child that is fed on a diet deficient in vitamin D, unless given a good deal of sunlight is going to have bad teeth, and he is going to have the rickets—he is going to have other troubles. McCullum says that 95 per cent have rickets before they are a year old. Don't misunderstand me—I don't mean to say that sugar is poisonous or is harmful in itself, but, on the contrary, it is an excellent form of good. Its principal use as a food lies not in eating between meals when the stomach is empty, when it is probably absorbed and immediately utilized, for instance, after a long, hard day, a few chocolates or a glass of soda water is helpful. It tides one over fatigue and it is really needed.

When much sugar is taken into the stomach with meals it stays there for hours and sometimes longer. It ferments and is productive of organic acids irritating to the stomach.

Doctors should be teachers. That is a thing that, personally, I am doing nine-tenths of my time, and I consider following the diagnosis the most important thing is to teach the patient how to live. Teach the patient the harmfulness of the excessive use of sweets. Nutrition is being taken up now by the public health authorities in a practical way, and it is doing a great deal of good.

PREVENTION AND MODIFICATION OF MEASLES BY MEASLES ANTIDIPLOCOCCUS GOAT SERUM.—Louis J. Halpern, Chicago, reports that fifty patients who gave a definite history of never having had measles were given measles antidiplococcus goat serum as a protection against measles. Five patients in this series died from three to ten days after receiving serum. Their deaths, however, were due to the illnesses for which they were originally admitted to the hospital; they did not develop measles nor did any serum sickness occur before death. Of the remaining forty-five patients in this series, twenty-eight patients, or 68 per cent, were successfully protected. While seventeen developed the disease, the majority of the latter experienced it in attenuated form. In spite of the fact that eight patients received serum after the fourth day of exposure, three of these, or 38 per cent, were protected. It is especially noteworthy that not a single complication occurred in any of the patients treated with serum who developed measles, nor was there any instance of a serum reaction in the entire series. He concludes that measles antidiplococcus serum apparently effected immunization against measles in a large percentage of cases.—J. A. M. A., April 17, 1928.

MALARIA THERAPY IN PARESIS.*

H. R. UNSWORTH, M. D.

NEW ORLEANS.

INTRODUCTION.

In February, 1927, this patient was inoculated intravenously with 5 cc. of tertian malaria. In June of the same year he reported back to work, since which time he has been re-engaged in his former occupation. He is married, has a wife and five children and, as far as we can see, is perfectly well.

Dr. Johns, I believe, is quite familiar with the patient with his acute outbreak and would possibly have something to say on the subject. As far as we know, psychically and neurologically, the man is as he was before his infection or acute clinical symptomatology.

We might have presented many cases demonstrating the benefit derived from malaria treatment in paresis, but chose this patient because his treatment antedates the others, which has the advantage of a longer period of observation of results. We have had the some success in the other cases.

Anticipating any therapy in diseases of the cerebro-spinal axis, it is most important to recall its anatomical structures, the units (of which you are familiar) being exquisitely sensitive to any trauma, be it physical, chemical, or psychic, and to disregard this bit of caution will invariably discredit any therapy undertaken, sometimes with unexpected fatalities.

There is little doubt that paresis, without going into any statistics, has increased within the past fifteen years. The distressing realization that its onset has become more rapid and that the average paretic is of an earlier age, suggests that the virulence of the organism is not alone to blame, or that there is any particular neurotrophic spirochete, but instead, the explanation lies in my mind in too vigorous an attempt to combat the disease with modern intravenous therapies, disregarding superimposing a chemical enarteritis upon an already specific one. The attention of some authorities, such as White and Freeman at St. Elizabeth's Hospital in Washington, has been attracted to this possibility and will no doubt be more vigorously stated as their observations and research progress. Is it not reasonable to suppose, when one stops to consider the pathology in paresis, that such is a distinct factor and not an ultra scientific thought?

Paresis, briefly, is a meningo-encephalitis. The cortex of the cerebrum is composed of nerve cells, a network of nerve fibers and processes, neurologic tissues with a superimposed vascular membrane—the pia mater. In paresis, the outstanding pathological feature is the active formation of new vessels in the cortex with dilated capillaries and widened adventitial lymph spaces. These lymph spaces are filled with lymphocytic and plasma cells. Throughout the brain there is focal, diffuse and tract degeneration. The very nature of the pathology suggests the hopelessness of improvement with chemical therapy: it is merely another source of irritation and encourages proliferation changes.

It is with this impression that I feel we are justified in attempting any reasonable measures which appear to offer, if not a cure, a more pronounced improvement—that is, longer remissions. Malarial inoculation, however, is not to be recklessly or unintelligently used. Giving one disease to combat another is a serious matter, and on all occasions to be used only in selected cases with due consideration of the physical status of the individual. There are to my mind, certain definite contraindications, viz: cardio-vascular involvements, syphilitic hepatitis, pronounced renal involvements and general physical deterioration. And, is not reasonable to assume that too vigorous arsenical therapy

*Read before the Orleans Parish Medical Society, March 12, 1928.

hastens the pathologic process and therefore may be classed as a contra-indicative?

As early as 1887 the idea that the beneficial results from the induction of fever in certain cases appeared to give good results, was expressed by Wagner von Jauregge, chief of the Psychiatric Clinic at Vienna, in an article on "Influence of Febrile Diseases in Psychoses." He began by using Koch's old tuberculin in the treatment of general paresis, giving his patients increasing doses, subcutaneously, three times a week. He allowed eight to twelve elevations of temperature. This was followed by mercury. In comparing the treated paretics with an equal number of untreated ones, he found that the lives of those treated were longer and the remissions more pronounced and lasting. In cases of general paresis where tuberculin was contraindicated, Bedreska used typhoid vaccine. This he gave intravenously every other day and received very satisfactory results. He also used staphylococcus and streptococcus vaccines, but abandoned these because the remissions were of short duration. Donath of Vienna and Fisher of Prague treated cases by intramuscular injections of sodium nucleinate, but because of pain and suppuration, this had to be abandoned. Wagner von Jauregge concluded that his best results were obtained in cases where he used intercurrent febrile diseases. So, in 1917, he inoculated nine paretics with malaria (tertian). His original technique, as reported in the Journal of Nervous and Mental Diseases, Vol. 55, No. 5, May, 1922, was as follows: He injected from one to four c.c.'s of malarial blood obtained during an attack of fever and inoculated the patient subcutaneously. Occasionally he would rub malarial infected blood on scarifications in the upper arm as in small pox vaccinations. He sometimes used the specimens of blood between the paroxysms of fever and chills. Usually the malaria developed from six to thirty-six days after the inoculation. He allowed from eight to nine, sometimes as many as twelve, elevations of temperature when the patient could stand it. Wagner Von Jauregge concluded that remissions occurred in 50 per cent of his cases, the patients actually returning to their former occupations. He observed, especially, that speech defects and epileptiform attacks, were benefited following malarial therapy. He also concluded that the sera of these patients were only negligibly influenced. Therefore, he regarded his serological findings as of diagnostic import but not of any prognostic significance. He also concluded that the earlier a paretic was inoculated the more pronounced the improvement.

O'Leary of Rochester, Minn., in an article in the A. M. A. Journal reported the results in one hundred cases treated with malaria between June, 1924, and February, 1926. He gave particular attention to the resistant parenchymatous forms of neurosyphilis, including incapacitating gastric crises, lightning pains in the legs and optic atrophy in tabes dorsalis. Fifty-seven of these 100 cases were cases of general paresis, 49 per cent of which were still in remission as measured by the economical status of the patient. Thirteen patients, presenting the syndrome of paresis, sine paresis or asymptomatic general paresis showed material improvemet; in four the blood and spinal fluid were normal. The evidence supported the assertion that in the serologically negative cases of tabes with persistent lightning pains or gastric crises, malarial inoculation had been beneficial. In cases of optic therapy, benefit resulted. Four of nine treated cases showed the loss of vision had apparently been arrested. He reported a mortality of 5 per cent in those cases in which malaria was considered as a factor. Clinical results were more pronounced when the fever treatment was instituted early in the course of the disease. Striking results were, however, seen in cases where clinical signs of general paresis were present two, three or four years before inoculation. It is to be borne in mind that

the serological changes are not always paralleled by clinical improvement. This was confirmed by observation of cases in complete remission, some of which manifested no serological changes. On the other hand, cases with complete change in all the factors in the spinal fluid and blood might terminate in sudden death. O'Leary concluded that malarial therapy offered the most valuable method of treatment in paresis, and that his best results were obtained with anti-syphilitic treatment following a course of malaria.

Watson W. Aldridge, Jr., of St. Elizabeth's Hospital, Washington, D. C., was the first to undertake, in this country, the malarial treatment in general paresis. He inoculated the first patients in December, 1922. In a general survey of these cases, some of more than five years' standing, he found that remissions had occurred in 61 per cent of the cases, complete remissions running about 40 per cent or a little less. From recent correspondence with Dr. Walter Freeman of St. Elizabeth's Hospital, I quote the following: "In regard to the malarial proposition we are still as enthusiastic as ever although we do not say it is the only treatment. We do believe, however, that some form of fever treatment is superior to all other forms. We have recently been surveying our five year cases and find that the percentages found after three years have remained practically constant. In other words, that there have been no recrudesences in the satisfactorily treated cases. Some 30 per cent are considerably improved, many of them holding jobs on the outside, about 30 per cent or so are rested but showing psychic scars from which there is little expectation of recovery, a scattering deteriorating still, and a somewhat larger percentage dead. Of course, in comparison of the usual run of life in paretics, the statistics are outstanding, for scarcely one in a hundred ordinary paretics would be alive at the present time, five years after remission.

"I am still impressed with the effect upon the anatomical picture, having just recently had occasion to examine a brain from a paretic treated who died fourteen months later. Paresis is not recognizable in the slides from the brain. I am sending you a reprint of my article on the anatomical changes and refer you to last year's Medical Journal and Record, Ferrarros' contribution detailing the three years' results from a clinical and serological standpoint. The latter are exceptionally important in administrating the long time necessary before evaluating the results.

"At the beginning of our sixth year, we have inoculated recently another batch of 65 paretics which the malaria is working well. I hope you can introduce this form of treatment successfully for as I see it it offers far more hope than any other form devised.

"We are beginning to think here that arsenical treatment is an important predisposing cause in the development of paresis, in a syphilitic, but we have not yet marshalled our figures."

In the few cases I treated with Dr. C. V. Unsworth in the Louisiana Retreat, New Orleans, this past year, the results obtained appear almost miraculous. It is of particular interest that these cases had received no previous specific therapy and that they were of the ideal type in that they were recognized early, and of vigorous physical make-up. Briefly, these cases presented typical serological findings with delapidation in the psychic field. Neurologically they were organically negative except for pupillary abnormalities with slight exaggerations of knee jerks. They were brought to us with the personality changes—the outstanding feature of which was grandiosity. One case, our only fatality, had previously received intensive intravenous therapies with definite somatic disease. Contrary to general impression, our best results have been obtained by subcutaneous inoculations; our failures

were 100 per cent intravenously. In our series, symptomatic malaria appeared from ten to fourteen days after inoculation. The quantity of malarial blood injected varied from 3-10 cc. In three cases it was free from syphilitic infection—which we believe is more desirable; the pure malaria plasmodia seeming to be of a more virulent type. In all instances, these patients were allowed to defeat the malaria, being alert for any sign of symptom which might call for immediate malarial therapy. The outstanding features of which we are particularly apprehensive being acute jaundice or an extreme hyperpyrexia with convulsions. A hypernutrition diet with elimination were considered essential in sustaining the patients during the acute illness.

SUMMARY.

Malaria therapy in paresis is particularly indicated in the early untreated cases and in those of vigorous physical make-up. The earlier a paretic is inoculated, the more favorable the prognosis. Best results are in those patients who are allowed to defeat their own infection. In my hands, subcutaneous inoculation has been the method of choice and has resulted in a greater number of "takes." Somatic disease, general physical debility are definite contraindications. The most pronounced improvements have been in the psychic sphere. In our unsuccessful inoculations we have concluded either our technique was at fault, the organism of an attenuated character—that is, weakened—or the patient possessed a natural immunity.

DISCUSSION.

Dr. C. S. Holbrook (New Orleans): The picture presented by paresis has been so discouraging that anything that points to improvement is well worth while. These cases, up to the present time, have practically always died within three years after the infection, or rather after the disease has become well recognized. In the hospital one does not find very many general paretics; dementia praecox constitutes about fifty per cent of the hospital population with a comparatively small percentage of paretics, not that the disease is rare, but because death occurs within three years—at least that has been the experience until quite recently. Now we feel more hopeful about it and believe that inoculation with malaria will give results that cannot be equalled by any other treatment. Just why malaria should be of greater value than other forms of hyperpyrexia is not understood. There apparently is some metabolism deficiency in the paretic. It has been noticed for years that the patients who develop paresis, about four to five per cent of those who contract syphilis, have little systemic effect and no skin reaction. It has been held that the metabolic resources of the body were at fault. Bringing about high temperature by vaccine or milk, has not given as good resultes as the malaria treatment and it is thought that the introduction of this disease in some way increases or overcomes the existing deficiency. It is rather interesting to note the report on several of these cases treated by this method.

Report No. 1. Markowitz in 1925 reported a case. The patient developed a gumma of the skin of the forehead just two months after being cured with malaria, that is, "cure" as the word is used.

Report No. 2. F. O. Schulze, in another article, reported tertiary syphilis of the skin in three cases of paresis subsequent to treatment with malaria.

Report No. 3. Wagner von Jauregg also showed in a typical paretic one year after treatment and restoration the patient developed aphasia, agraphia and Jacksonian attacks, but no psychic disturbance. Treatment with mercury and salvarsan cleared up the slighter symptoms.

They attempt to show that the specific reaction was taken care of by changing the resistance of the body through the inoculation of this disease, malaria. It may be true. The best results are achieved where malaria is brought about with some other treatment; as Dr. Unsworth has indicated, salvarsan, mercury, bismuth salicylate and some of these drugs.

My experience with malaria has not been very extensive; the opportunity to handle these cases in private practice does not occur as often as one might hope. I have twelve cases that have gone back to work; I have two others that are demented. On the whole, the results are encouraging. The remissions are brought about in 25 to 60 per cent, depending on the criteria that the various men hold as cure or remission. This malaria treatment, of course, carries with it a rather dangerous mortality or morbidity. One patient gave me a great deal of worry. He developed fever 107° and every red cell contained malaria plasmodia. I was terrifically upset about it. The patient did very well under anti-malarial

treatment. I think some of these cases do not respond to malarial treatment. Some will not contract the disease. Recently I had a patient who was given malaria and after a short time, four to five days, he spontaneously recovered from his malaria, so in that case this form of treatment had to be discarded. He might have been treated with milk or Koch's vaccine and possibly gotten good results.

There is one warning that might well be sounded, viz: that malarial treatment should not be given in any cases of syphilis of the nervous system except the patient has paresis or tabes. There has been a great deal of publicity about this treatment and it has been suggested that all types of cerebro-spinal lues should be treated with malaria. It was only recently that I had a comparatively simple case of cerebrospinal syphilis sent from Texas with the request that this patient be given malarial treatment. This would have been dangerous and unwarranted. Results can be brought about in these cases with simple anti-luetic measures. Only the parenchymatous syphilis (paresis and tabes) should be treated by inducing malaria.

Up to the present this treatent, as outlined by Dr. Unsworth, has given most satisfactory results. It will require observation over a long period of years before the benefits from the malarial treatment of paresis can be evaluated.

Dr. F. M. Johns (New Orleans): Before the malarial treatment of paresis was instituted, I do not believe that there was a more hopeless picture with regard to the treatment of syphilitic patients as seen by the laboratory man than that shown by the average patient developing paresis. Beginning at the diagnosis made by the positive spinal fluid findings, practically every case that I have seen over any period of time has shown a gradual increase in the positive findings in the spinal fluid, together with an apparent progression of the mental deterioration of the patient. Occasionally an early case would yield to very intensive arsenical and mercurial treatment and I have seen a very few cases only with central nervous involvement in which the laboratory findings in the spinal fluid were negative. We have just seen a case presented by Dr. Unsworth who has been apparently completely restored to normal. I had the pleasure of examining this patient at the time the malaria treatment was instituted and I can assure you that his recovery from a condition of actual mania to the perfectly normal, co-ordinating, intelligent human being of tonight is little short of marvelous. I have seen several other instances in which the results were just as striking and in several of whom the spinal fluid findings are gradually returning to normal.

In Philadelphia last spring I had the pleasure of seeing a number of patients treated by Dr. Frank Schamberg, Director of the Dermatological Research Laboratory, during which time quite a number of cases of apparently cured paresis were presented. Dr. Schamberg remarked that it was the concensus of opinion among many neurologists who had been following these cases that nothing in the annals of treatment of paresis so far had produced anything like the favorable results obtained by the malaria form of treatment.

While the treatment itself is rather severe, I believe that in well selected cases of otherwise physically healthy individuals this form of treatment is undoubtedly the method of choice at present and certainly offers the only hope of a clinical cure.

Dr. C. V. Unsworth (New Orleans): I have been doing psychiatry for about sixteen years and before the advent of malaria therapy whenever a patient had paresis we considered it hopeless. When anyone made a statement that he had cured a case of paresis he had to do some talking to convince the listener. I cannot see the danger of malaria therapy nor do I believe all this bugbear about patients dying from this treatment. Down here we know more about the treatment of malaria, which probably accounts for our lower mortality rate. I never lost a case of tertian malaria in my life and before inoculating with malaria never had a case of paresis get well. Of course, if you take the late cases where there has been a great deal of destruction and give them high temperatures, they will probably die. It is the selected early case that gives the best results. I was visiting St. Elizabeth's, in Washington, D. C., and had a talk on this subject with Dr. White. He has inoculated probably 50 to 75 cases with good results.

Just a few words about the patient Dr. Unsworth presented tonight. When I first saw him he was much excited, busily engaged in buying up rice mills and building homes—expansive ideas and exalted. Laboratory study showed increased globulin, a paretic curve and a four plus Wassermann. You now see him as an apparently perfectly normal individual, supporting a wife and five children. What difference does it make what you have in your spinal fluid if you can make a living? I have never seen a paretic adjust himself, economically and socially, as this man. In other treatments the gain is not so marked, either economically or socially. I believe in these cases where the treatment is properly carried out we are going to have a great future. I have had but ten or twelve patients. One Dr. Johns inoculated had teperature of 104°. We will present him in a couple of weeks greatly improved.

Dr. Connely (New Orleans): Dr. Unsworth is to be congratulated on his work. Any treatment that will help paresis is to be grasped at and tried out. Some two and a half years ago I had occasion to look over cases at St. Elizabeth's in Washington and some of their results were sensational. At that time the attitude of the men doing the work was hopefully skeptical —some still maintain that attitude. I think that probably it is best, for while at present it is probably the most hopeful treatment that we have, nevertheless, I am inclined to agree with Dr. Kimball, that we may be a little too enthusiastic over it.

Dr. Holbrook's caution in regard to being sure that we are treating paresis is well taken. It is a common idea that almost any type of cerebro-spinal syphilis should be treated with malaria. I do not know if Dr. Kimball has had cases of all sorts coming from long distances for this treatment. I had one from Los Angeles, a typical case of cerebro-spinal syphilis.

Dr. Kimball has placed his finger on the main trouble in judging accurately the value of this therapy in paresis, viz: lack of accurate statistics and the length of time necessary to find out whether the benefit is transitory or permanent.

Dr. W. H. Seeman (New Orleans): I saw this young man in an attack and had to use all the influence I could to induce him to let me do a spinal puncture. He was anxious at the time to purchase the whole of New Orleans. It happened I had treated his family, so I succeeded in getting him to postpone the big deal long enough to allow me sufficient time to do a spinal puncture.

We know that in paresis the mortality has been 100 per cent, so granting on the one hand that we take a chance by inoculating a patient with tertian malaria, on the other hand we are giving him an opportunity to get well. I was very much impressed with an article in the A. M. A. Journal giving the mortality in treated and untreated paresis: in the untreated cases the death rate was 58 per cent in one year; in those where malaria therapy was employed the mortality rate was 10 per cent.

It would seem, therefore, that this method of treatment does not add much danger or gravity to the situation.

Dr. Isham Kimbell (U. S. Veterans' Hospital, Gulfport, Miss.): I have been studying the treatment of paresis by inoculation with malarial blood for several years (about four years) and I am not quite as enthusiastic about it now as when I first began. It has its advantages and disadvantages. I have seen some very remarkable results in the treatment of paresis by this method, but I do think that we should be conservative about this method of treatment and keep accurate records of our cases, tabulating all our findings, details of treatment, outcome, etc., so that we may have some reliable information.

In studying these patients we have outlined a system for recording the data in each case. We like to know the length of time the patient has been under observation, the preliminary treatment, if any; the amount of malarial blood inoculated and whether administered intravenously, subcutaneously, or intramuscularly; the reaction, if any; the incubation period; further observations and any complications; the effect of treatment on the serology, including the cell count, its effect on the globulin content and colloidal gold, and the ultimate result of this treatment. In the event of death, if the body is autopsied, the accurate necropsy findings should be reported. If we standardize our work to show what we have done and compare it with the work of other investigators, we will derive some information which will prove of assistance to us in ultimately determining the value of this form of treatment. I have three groups of cases which are interesting. The first group consists of 7 patients who have been under observation for a period of three years; the second group, 27 patients who have been under observation sixteen months, and the third group, 38 patients, six months. In the first group, all the patients were advanced paretics. The second group were showing considerable dementia. Of the third group, 4 were demented, 12 were actively psychotic (six mildly so), 16 were early cases, and 6 late cases with some euphoria.

Of the first group, none died during treatment and none have died following its completion. Three are slightly improved, four much improved —all are living at this time. All of these patients were at some time disturbed, necessitating confinement on locked wards. There were some complications in these groups; nausea, vomiting and hyper-pyrexia were later serious complications and because of persistent nausea one patient could not take quinine by mouth. Seven patients were inoculated by the subcutaneous method, the others intravenously. The period of inoculation was from six to twelve days, the paroxysms ranged from five to sixteen. An atypical or irregular course of temperature was the rule. One patient had a chill and a rise of temperature every 24 hours throughout the attack; there were free intervals ranging from five to ten days, but these were not succeeded by paroxysms of greater intensity, neither could plasmodia be demonstrated in the blood at all times. Frequent examinations of the blood were made and

the number of parasites per 100 fields noted. Some investigators have reported that the intensity of the paroxysms is not dependent on the number of parasites per field, but it was in our cases. In one case there was improvement for three months after inoculation, then the patient began losing weight and he became worse mentally. A second inoculation was then done and following this patient gained weight, his general condition improved and it was not necessary to retain him on the locked ward. This patient was also given intensive anti-syphilitic treatment. All of the original 7 cases were inoculated twice, some of them three times; the last two attempts to inoculate the original 7 cases failed. Four of these cases in the first group are on an open ward, two are on closed wards and one has returned home to his work. Twelve of the patients in these groups who received the inoculation malaria treatment are now maintained on closed wards. Of these twelve cases, one is disturbed but his physical condition is good, seven are very much deteriorated, three are improving and may become open ward cases. Of those on locked wards, three are of the original 7 under observation; five are of the third group under observation six months, and the others are from group No. 2 who have been under observation sixteen months. Eighteen patients have returned home and have resumed gainful occupations. Twenty-two are engaged in active out-door work on the farm and they may eventually return to their homes. Nine have travelled a long way "on the road to dementia" and one seems hopeless and will probably die of paresis. Two cases died during the treatment, one from pneumonia, and the other following an epileptiform seizure. It has been our observation that demented types showing decided mental deterioration do not improve and that the manic or expansive types do improve. One patient who had been treated by inoculation with malaria blood and had been under observation several months developed acute mastoiditis which required mastoidectomy. This patient was one of the worst cases you could possibly see, he was filthy in his habits, would chew up his bed clothing, tear up his pajamas, and had to be kept in restaint at times. He improved very rapidly after he recovered from his mastoid infection and has returned home and has resumed his former occupation. One patient under our observation had a remission following an attack of pneumonia.

As to the changes in serology.

In the first group, all have negative Wassermann reactions on the blood and spinal fluid, the gold curve is negative, in 5, modified in 1, and unchanged in 1. In the second group, the blood and spinal fluid is negative in 7, the blood is negative in 15 cases, and the spinal fluid is strongly positive in 5, and weakly positive in 10 cases. In the third group, the blood Wassermann is definitely negative in all execept 6 cases, remaining strongly positive in these.

The study of the spinal fluid has not been completed in the last group.

Just exactly what the histo-pathology is in each one of these cases which we have diagnosed as paresis we are unable to state. The pathology of general paralysis of the insane has been clearly outlined by competent pathologists and we can now accept this outline as definite and indisputable. Do we sometimes report cases of diffuse interstitial cerebral syphilis as cases of paresis? Do we sometimes confuse other forms of neuro-syphilis with paresis? There is food for thought here. Let us get as many complete and accurate necropsy reports as possible before we make our final conclusions as to the efficacy of this form of treatment.

I thank you.

Dr. H. R. Unsworth (closing): Personally, I have had no mortality. My conclusions have been drawn mostly from observation and contact with the literature. You have to believe what you see. You saw tonight. I do not think there is any better proof that malaria is worth while than this one case brought here to demonstrate its value.

There is a very definite thing everyone knows, that is, that clinical symptomatology does not run to the serological reactions will all be negative. It is a year, or longer, before you can expect any change in your serology. I personally have hertofore always accepted paresis as the terminal stage in cerebro-spinal lues. In microscopic examination of the paretic brain following malaria therapy they are unable to demonstrate any pathology; it seems to me that the same thing must hold good in cerebro-spinal lues. I have seen some very definite, purely psychic, results in patients who were paretics; I believe your improvement is definitly psychic, that your result is in the psychic field and not organic. Your man who was not oriented, under malaria treatment becomes oriented.

I am perfectly enthusiastic about this therapy and to my mind it is certainly the treatment to employ in paresis. The earlier it is given the better the result. It is quite obvious that if you take an individual with deterioration and inoculate him with an acute disease you are going to kill him occasionally.

THE PROBLEMS OF UREMIA.*

J. H. MUSSER, M. D.,†

NEW ORLEANS.

Before undertaking to discuss with you the clinical and the etiologic problems of this disease, not to mention the unusual findings that we get from the study of blood chemistry and the urine, I think it might be well to define just what is understood by uremia. The general conception of this term is that it is a peculiar psychomotor disturbance characterized by certain symptoms which are toxic in origin. This definition applies to the type of uremia which we usually picture in our minds as being uremia, but I should prefer to make my definition even more broad than this and include in it types of response of the human organism to any failure of the kidney function. This certainly is a most inclusive definition and will allow and permit of a rather broad discussion.

If I then define uremia as an intoxication caused by renal dysfunction, it might be well to mention the functions of the kidney which are disturbed as a result of nephritis, in the majority of cases, but which may be disarranged by some condition which has no bearing whatsoever upon inflammatory or proliferative changes in the kidney such as we see when we have urinary suppression secondary to prostatic obstruction.

The primary functions of the kidney are five in number:

1. Secretion of water.
2. Elimination of waste products by nitrogen metabolism.
3. The maintenance of optimum concentration of salts in fluids and tissues.
4. The elimination of acids.
5. The excretion of toxic materials artificially introduced.

The simplest of these functions is the excretion of water, the normal individual passing from 1,000 to 1,500 cc. in 24 hours. The waste products of nitrogen metabolism include those substances—urea, uric acid, creatinin, which we find of value in determining, by blood chemical methods, their percentage quantities in a given amount of blood. The kidney is able to excrete in the urine by a process of concentration enormous quantities of urea and other waste products. The concentration in the urine may be seventy-two times that of the blood. However, if this ability to concentrate is lost, as it is in many cases of nephritis, we find a piling up of these waste products in the blood, recognized by certain clinical symptoms which are often very hazy and indefinite, as well as by an examination of the blood. The third function of the kidney has to do with the proper balance of salts, of which sodium chloride is by far the most important. Normally the kidney is well able to do this, excreting an excess of chloride and maintaining in the blood a uniform concentration of this salt. If this particular function of the kidney fails, however, we have salt accumulating in the tissues, as the concentration of the blood is remarkably stable, and to maintain the proper osmotic pressure fluid goes into the tissues, producing edema. The fourth function of the kidney is an important one. Acids are formed during the process of metabolism. By its action with buffer salts, the kidney is able to excrete large quantities of acids in the course of a day—60 to 70 cc., or expressed somewhat differently, from 3 to 3½ grams of sulphuric acid each day passes through the normal kidney. If this does not happen, we have a condition of acidosis which, however, never attains the degree of severity which characterizes the acidosis of diabetes, for example, in which

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condition abnormal acids are formed in the body. The last function of the kidney is, of course, an extremely important one and yet it is one which does not manifest itself very frequently clinically. One of the misfortunes of this organ is that this particular function may often be very harmful and dangerous to it. The elimination of streptococci and other products produces inflammatory changes. The excretion of mercury will cause a severe nephritis and often death.

In uremia these various functions of the kidney are disturbed and disturbed in many and numerous ways. Just why the various symptoms should appear we cannot always say, nor can we attempt to prognosticate just when such symptoms may appear. Furthermore, it is impossible in the majority of cases to correlate the clinical syndrome with the pathologic picture and, lastly, we are unable to state just what is the ultimate and basic cause of uremia. Various theories have been advanced, the earliest one, of course, being that urea is retained in the blood, but we know that urea alone is not capable of producing the symptoms of uremia and we know also that uremia occurs without marked nitrogen retention. While it is true that urea in excess does not produce the symptoms of uremia, nevertheless it is quite possible that there might be increased concentration of the other nitrogen waste products, such as creatinin and uric acid. There is also the further possibility that there may be more complex fractions of the non-protein nitrogen in the blood which may be responsible for the condition. The possibility of decomposition products of these nitrogenous retention materials has been suggested, but, on the other hand, these have never been shown to be toxic. It is possible that uremia may be due to disturbance of internal secretion of the kidney or to the sending into the circulation of toxic material from disintegrated kidney cells. Phenol derivatives have also been suggested. In certain types of uremia, spoken of as the moist type, very frequently the symptoms may be due to cerebral edema, as is seen in the so-called moist type of uremia. The one definite positive information that we have has come from the researches of Nellis Foster, who has been able to isolate from the blood of uremic patients who had the convulsive type of uremia, a crystalline substance which when injected into animals could reproduce the psychoneuromotor syndrome of uremia. This certainly represents a type of uremia which is due to some abnormal product of metabolism.

From the clinical point of view we are accustomed to divide uremia into three main types — the one associated with marked nitrogen retention associated with psychoneuromotor symptoms and often spoken of as the dry type of uremia; and the moist type without marked nitrogen retention but with a retention of chlorides. Lastly, we have the type in which the toxic substance of Foster has been found. This manifests itself chiefly in epileptiform-like convulsions. The first two types are just as much uremic in their origin and manifestation as is this third type which presents the classic picture of uremia. The type with nitrogen retention, seen probably more beautifully in mercury poisoning than in any other one condition, presents none of the outstanding features of uremia. These patients frequently go off into a quiet sleep after becoming more and more comatose and at no time have any unusual complaints. This is illustrated very well by a patient, J. P., a young woman, aged 27, who took three one-half gram tablets of bichloride of mercury. The patient, after the preliminary vomiting and purging, apathetically lay in bed, was quiet, but talked until the eleventh day of her disease, when she sank into a coma from which she could not be aroused, and she died within two hours. The moist type of uremia, likewise, does not show any very unusual symptoms suggestive of renal insufficiency in a sense that we have

psychic and nervous manifestations. Extreme edema of the brain produces somnolence and then sleep. Illustrative of this type is the case of Mrs. M. M., an old lady of 65 years of age, who was admitted to the hospital during a period of unconsciousness, which when she was aroused from was not accompanied by any preliminary signs or symptoms. Blood pressure was not unduly raised, non-protein nitrogen was not unduly high, phthalein elimination was good. Urine showed a considerable amount of albumin, fairly high specific gravity, numerous casts. Another case is that of Mrs. P. T., who came into the hospital with rather pronounced anasarca. This patient also had marked increase in her blood pressure, some cardiac enlargement, stupor, fairly high non-protein nitrogen, in the urine a large amount of casts and great quantities of albumin, together with a phthalein elimination which varied between 15 and 25. While in the hospital she several times became extremely stuporous and had numerous attacks of paroxysmal dyspnea. She represents the moist type and shows quite clearly that there can be no absolute and definite, clearcut delimitation of the one type from the other. J. M. S., on the other hand, 45 years of age, was admitted to the hospital with convulsions which came on suddenly. This patient had failure of vision, blood pressure of 210/160, a low non-protein nitrogen, never above normal figures, specific gravity which was invariably low, a fair degree of albumin and a low phthalein elimination, which increased from 18 per cent on admission to 55 per cent at the time of his discharge. This patient was the convulsive type of uremia, yet she had physical examination and urinary findings which were rather unusual for a condition with outstanding manifestations such as this convulsive type.

The Manifestations of Uremia. I have given three histories briefly rather from the point of view of illustrating severe types of uremia rather than to call attention to the manifestations of the condition. These are so obvious that they would not be likely to occasion much difficulty in diagnosis. On the other hand, employing the broad definition that we have given for uremia, a tremendous number of patients are observed with symptoms which are undoubtedly due to the effects of kidney insufficiency and for that reason are really manifestations of uremia.

Urinary Symptoms. Given a patient with indefinite, irregular, vague and atypical symptoms, it is wise always to suspect uremia. The first study that is made after the history has been taken and physical examination has been completed would be the examination of the urine. Here we find tremendous discrepancies which are often puzzling and indefinite. Albumin may be present in large quantities or it may be absent. Casts may or may not be present. I have seen patients with marked edema give a normal phthalein output. Why we should get these marked variations in the urinary symptoms is one of the puzzles of this condition.

Psychoneuromotor Symptoms. The psychoneuromotor symptoms are of great importance in the diagnosis of uremia. The psychic syndrome is on the whole decidedly more important than is the neuromotor. The psychic symptoms may range from a low grade delirium to pronounced excitable states. At times the patient suffers from hallucinations. At other times they may be stuperous or even comatose. Delirium at night is fairly common and insomnia is a distressing symptom even in those patients who are most stuperous. The nervous manifestations include attacks of paraplegia or hemiplegia, asphasia, neuralgias and headache. Of these neuromotor symptoms, most interesting are those associated with transient loss of power in the extremities or with aphasia. Oftentimes this phenomenon is extremely short and may disappear

in an hour or two. At other times it may last for twenty-four hours. Headache is one of the annoying symptoms. This is almost invariably present and at times reaches a high degree, causing intense suffering of the patient. The uremic neuralgias are fairly common. I have seen pain in various parts of the body explicable only upon this basis.

Respiratory Symptoms. Cheyne-Stokes' respiration is extremely frequent, but it is found in a good many other conditions. Paroxysmal dyspnea seen at night is in the same category, but true pumonary edema may be said in many cases to depend entirely upon impairment of kidney function.

Cardiovascular Manifestations. Hypertrophy of the heart and high blood pressure are a constant finding in the most frequent type of nephritis—namely, the chronic nephritis without edema. In other types of nephritis these findings are not always observed, but because of the fact that the chronic type without edema is so common, we are accustomed to associate the high pressure and hypertrophy of the heart with uremia. It is quite compatible with having true uremia to have a low blood pressure. Riesman* reports a case in which the systolic pressure was only 84.

Ocular Symptoms. In many cases our diagnosis of uremia can be made only upon correlation of the whole symptom complex. One of the most important examinations to be made is the use of the ophthalmoscope which may show many changes which are essential in building up the clinical picture. The occurrence of choked discs, neuroretinitis and exudates on the retina may be findings which will finally determine the nature of the condition.

The Prognosis. It is impossible to tell what the ultimate outcome will be in patients who present the subjective and objective phenomena of uremia. The individual who develops uremia as a result of urinary suppression from a large prostate, for example, may live on for years after the condition which caused the suppression has been removed. The patient with symptoms of uremia following scarlet fever may entirely recover and never have a sign or symptom afterward indicative of renal insufficiency. Even in fairly advanced and well marked cases of nephritis, the patient may live for years. I have in mind a far advanced cases which I have followed for three years. E. B. came under my observation early in 1925 when he was brought into the hospital because of sudden unconsciousness. He had a blood pressure of 230/150. He was in coma for forty-eight hours and then came out of it. His non-protein nitrogen was high, albumin was 9 per cent, phthalein elimination 20. On and off for the next three years he came into the hospital for a short time on account of headache or because he had been picked up unconscious. His eye were almost blind and he had extremely high pressure, yet, except for these annoying attacks of unconsciousness he was able to carry on and make his living. When he was finally brought into the hospital a few weeks ago he developed urinary suppression from a large prostate and died in the course of a few days.

Treatment. It hardly seems advisable to go into a detailed discussion of the treatment of uremia. It boils down to two main features. First, remove the cause, if possible. If, unfortunately, it is not possible to remove the cause, then encourage elimination by the drinking of large quantities of water, free purgation and sometimes sweating. There are one or two features in the treatment that I would suggest should not be overlooked: First, diet; second, venesection; third, diuretics. The diet should be plain and non-irritating. Milk is the food that can best be taken and its value may be enhanced, when the patient's stomach is extremely irritable, by

(Riesman, David R., Southern Med. Jour., 16:160, March, 1923.)

adding carbonated water. Cereals are of value and they should be well sweetened in order to get the caloric effect of the sugar. Well sweetened fruit juices are also advisable to give the patient and sometimes can be retained when milk cannot. Under any circumstances, as soon as the patient has recovered from his acute manifestations of uremia, do not be afraid to give him plenty of food and always give a sufficient amount of protein food without fear. Nitrogen equilibrium may be obtained with approximately a gram of protein per kilo of body weight.

Venesection. In active uremia, venesection is incomparable. For the patients with the severe headaches without any other psycho-motor symptoms, venesection is also of value. That same thing applies to the individual with high blood pressure. In these cases rather frequently repeated small venesections are best adapted. For the extremely severe headaches which does not respond to the ordinary forms of treatment, I have found lumbar puncture extremely valuable.

Diuretics. A word about these much abused preparations. Keep away from them. Their action on the kidney in the great majority of cases is primarily a stimulation followed by secondary exhaustion. Their beneficial effect is extremely temporary and their after effect is usually markedly deleterious. Under no circumstance would I recommend their employment.

DISCUSSION.

Dr. W. A. Dearman (Gulfport): I deem it a privilege to have an opportunity to discuss this classical paper of Dr. Musser's. He has very clearly enunciated the etiology of types of uremia that may come under our vision, and the blood changes as well as the urinary findings. There is no question but what many a man has died of uremic coma with a normal blood history and a normal urinalysis. It is puzzling and baffling sometimes to have to think of this. I am glad to hear Dr. Musser condemn diuretics in uremic cases of any kind. I have a patient who, before I saw him, had been to a neurologist. He was completely blind because of retinal edema. Dr. Musser brought out, I remember, clearly the cerebral symptoms. However, a few nights ago a patient was in rather a comatose state, violent headache and occasionally some nausea and vomiting, and a Cheyne-Stokes respiration. I found him nervous, under the influence of morphin, and I suggested to the doctor with whom I was in consultation, that he discontinue the opiate and his respiration cleared up promptly. I saw that also in a child. Dr. Musser also condemned, as I say, the diuretic treatment. It will not do to stimulate and inflame the kidneys, for they are not functioning well any way. They are doing all the work they can possibly do. To stimulate them further is not unlike whipping a horse after it had fallen in the road completely exhausted. I have a patient now who had been taking 15 grains of pmorphin for sometime, and enough poison was being eliminated into his kidneys to set up an exacerbation of a pre-existing nephritis. They had given him 30 minims or about 2 cc. of spirits of nitre every hour and a half, and they added to that, which was about the last straw to break the camel's back, 15 drops of spirits of turpentine every four hours, and were doing that for four days. He was as blind as a bat. I presume he is dead now, I don't know.

The uremic state will offer a complex occasionally. They are usually well delineated or clear in the minds of men from investigation. Dr. Musser brought out the importance of the eye being carefully examined. This is very important, indeed, and will even give you a clue to what is going on when other symptoms are in doubt. There are certain defined conditions in the fundi which will lead us to an accurate diagnosis. I see much cerebral arteriosclerosis, sometimes with retinal changes closely similating those of the uremic state. I think this paper very illuminating and one that is timely.

Dr. W. W. Crawford (Hattiesburg): Mr. Chairman and Gentlemen: We have not gotten away from our appreciation and veneration for our professors. When I was a student in Philadelphia I used to hear Dr. Musser at the University of Pennsylvania on rare occasions, and I was quite impressed with his astuteness as a teacher of medicine, and today it is my privilege to stand up and discuss a paper by his honored son. We are very glad indeed to number among the teachers of medicine in the South, Dr. J. H. Musser. It goes without saying that his contribution to this program today is replete with valuable information. It is further apparent that any discussion on my part would lend nothing to the information to be acquired from this paper.

I was very glad to hear Dr. Musser say that uremia is a rather will-o-the-wisp-sort of thing. You can't put your finger on it. You see things

that it does to the body, but you are not so sure from what particular chemical source they are. Dr. Bourchard, you will remember years ago, demonstrated that a patient might have uremia for several days and yet not develop uremic symptoms, certainly not uremic coma, which means of course that that thing we denominate uremia did not operate in that particular patient's experience. Of these cases of uremia that we constantly see, cases in which the uremia is a chronic manifestation, particularly those complicated by hypertension associated with nephritis, we may say that we have a condition that cannot be rectified, and therefore we must be ever on guard to keep our patient in the best possible condition if he is to live for a number of years.

Speaking of the surgical aspects of uremia, a great many patients come into serious trouble in the surgeon's hands, if the surgeon fails to recognize the necessity of estimating the functional capacity of the kidney before operating. Time and again we have seen patients who were secreting an adequate supply of negative urine, and yet, when we made a real functional test, we would be apprised of the fact that the kidney was totally incompetent, and that if an operation of any special moment with ether anesthesia was done on such a patient, we should have regretted it.

We are coming to appreciate in surgery more and more the importance of a pre-operative preparation of our patients, and there is no factor that is so significant as the recognition of this question that leads to the condition that you call uremia. Just so surely as we operate on a patient with a low renal function test, just so surely shall we get into trouble. Unfortunately, when you recognize the fact that the kidney is incompetent, however urgent the operation may be, it is best to let it along. Time and again have we had occasion to say to a patient who should have surgery, that we can not afford to operate because of the fact that there is an incompetent kidney. I enjoyed the doctor's paper very much and want to congratulate the Mississippi State Medical Association on having him as its guest.

Dr. L. S. Lippincott (Vicksburg): I have enjoyed this paper very much. Nephritis in general is one of the most important subjects and I would like to ask Dr. Musser, if I may, what significance he puts on the retention or non-retention of uric acid in kidney disease, particularly in uremia. We were taught at one time that uric acid was the first of these products to be retained, and at that time we thought it was very important that we get back at early kidney disease. It has not worked out so. It is not an early product and it isn't always a later product. I would appreciate very much the doctor's opinion on that.

Dr. J. H. Musser (closing): First, I want to express my appreciation to you for inviting me here today, and giving me an opportunity of talking to this splendid body of men. I thank Drs. Dearman, Crawford, and Dr. Lippincott also, for their points of discussion. In regard to the question Dr. Lippincott asked, I think that uric acid is to a certain extent a sign of some value. You can not say definitely and positively about it. The test of uric acid is somewhat a bad prognostic import, I think, of kidney insufficiency, but it is not absolute.

The question of protein is rather important. It is necessary to maintain the equilibrium, and to do that, you have to give nitrogen a certain quantity of protein. The protein should be given by the mouth and should be sufficient to keep a normal equilibrium between the intake and the output, so don't be afraid to give a certain amount of protein in your therapy. It is quite essential. I wanted to call attention to the fact that a few years ago efforts were made extensively to classify types of nephritis according to the different types of anatomic lesions in the kidney. I have been following Dr. Henry Christian's classification of nephritis rather extensively, and that is a classification which is based entirely on clinical symptoms, chronic nephritis with edema or without it. It is a very simple classification and one which I think is of great value because it does not attempt to make this differentiation between different portions of the kidney which are involved. It gives us rather a clear cut easily recognized clinical picture. Again want to thank you very much.

USE OF MERCUROCHROME AS VAGINAL ANTISEPTIC IN INDUCTION OF LABOR.—Evidence is presented by Harry Welday Mayes, New York, to show that when 4 per cent mercurochrome-220 soluble is used as a vaginal antiseptic prior to the induction of labor, the safety of the hydrostatic bag is greatly enhanced. For two and a half years the use of mercurochrome as a vaginal antiseptic has been adopted as a routine procedure at the Methodist Episcopal Hospital, and there have been 3,500 deliveries with an uncorrected morbidity of 8.6 per cent. In a series of ninety-three induced deliveries in the period from 1917 to 1924 there was a morbidity of 29 per cent, with an average of 2.08 days of morbidity for each patient. In this series there were eight maternal deaths, a mortality rate of 8.6 per cent. For the years 1917 and 1919 the morbidity rate was 40 per cent. Since the routine use of mercurochrome for all deliveries was instituted, seventy-eight patients have been delivered after the induction of labor by means of the hydrostatic bag. During that time, the morbidity has been 11.5 percent as compared with that of 29 per cent in the earlier series; that is, 60 per cent less as compared with the morbidity without mercurochrome. At the same time, the maternal mortality has been reduced from 8.6 per cent to 1.3 per cent, and the average period of morbidity from 2.08 days to 0.57 days.—J. A. M. A., Nov. 12, 1927, p.

THE COMPLICATIONS OF CANCER.*

GEORGE T. PACK, M. D.†

BIRMINGHAM, ALA.

The complications of cancer are of timely interest because: (a) The initial symptoms of certain cancers are heralded by the onset of complications, (b) most cancerous individuals die from complications, rather than the natural progress of the disease, (c) complications form the most important barrier to the successful treatment of malignancies. In this short résumé, no attempt will be made to discuss the signs and symptoms of cancer of any particular organ, nor will the nature and distribution of metastases be considered.

THE LOCAL COMPLICATIONS.

MECHANICAL CONSEQUENCES OF THE PRESENCE OF CANCER.

The mechanical disorders induced by volumetric increase of a malignant neoplasm are no different than those produced by benign tumors. Epitheliomas and gliomas of the brain give the same syndromes of intra-cranial hypertension as do cysts and fibromas; cancer of the prostate provokes the same troubles as simple adenomatous hypertrophy, plus the subsequent effect of infiltration.

By the time a cancer has caused stenosis sufficient to evoke symptoms, it is very late in its course. It is only rarely that absolute stenosis with complete obstruction of a visceral lumen is seen, as in the esophagus, pylorus and Vaterian ampulla. As a rule the lumen of any canal, which is infiltrated by neoplastic tissue, is a patent, rigid, inextensible ulcerated tube. The perverted functioning of the part, expressed as recognizable symptoms, is usually due to immobility and an accompanying spasticity.

The orificial stenoses are more commonly caused by infilitrative growths than by enormous and occluding vegetations. For instance, scirrhous growths of the recto-sigmoidal junction cause obstruction earlier than the bulky, exophytic, vegetating tumors of the rectal ampulla.

TROUBLES OF DEFICIT.

Troubles of true deficit due to loss of function, because of massive destruction of organs by cancer, are infrequent. Only a very small portion of liver, kidney (1/10), thyroid and pancreatic (1/8) substance suffices for the maintenance of normal function. This offers the explanation why myxedema is uncommon in thyroid cancer and why diabetes practically never occurs as a result of pancreatic malignancies.

ULCERATION.

The appearance of an ulceration is a critical event in the history of any cancer. The ulcerated cancer is then no longer a latent affection. A new phase begins, which is rich in the possibilities of accidents and symptom-provoking events. This is the opportune moment to issue an admonishment against biopsy of a tumor, when the superficial mucous membrane is unbroken, as in such locations as the rectum and bronchus.

Ischemic necrosis and infection are the two chief factors which concur in the formation and in the incipiency of neoplastic ulcerations. The neoplastic tissues are frequently fragile; they are more vulnerable to nutritional impairment and irritations than normal tissues. When tumors acquire certain sizes, foci of degeneration appear in edematous and hemorrhagic zones.

The inflammatory lesions which accompany the neoplasia are generally greatest at the periphery. In mucosal cancers of the digestive tube in particular, the inflammation of the mucosal wall is infinitely more extensive than the tumor itself. The inflammatory infiltrations are subacute;

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at the periphery, the reaction is proliferative and sclerotic, but on the surface it is necrotic, degenerative and suppurative. The ulceration is, properly speaking, an ulceration of tissue invaded by a cancer. This submucosal extension of cancer and inflammation together is especially noticed among cancers of the stomach, esophagus and large intestine.

Cancers which begin on the surface, as the carcinomas of the skin and mucous membrane, commonly ulcerate early. Fortunately malignant skin ulcers have usually a torpid growth. The ulceration is frequently contemporary with their initial appearance. However, some deep neoplasms of the skin may propagate early by metastasis and remain covered by intact epidermis for a long time.

The simple chronic ulcers and cancerous ulcers of the stomach resemble each other so much at times, that they are frequently the cause of regrettable confusion. In cecal disease, the eye of the surgeon can distinguish the thick infiltration and blanching of the obvious cancer, and the tubercles, peritoneal nodosities and irregularly ulcerated mucosa of advanced tuberculous cecitis. But in other instances, a histological study alone demonstrates with certitude the true nature of the process. Analagous difficulties exist in the interpretation of rectal ulcers. Ulceration of tumors of the breast, tongue, floor of mouth and cervix uteri merit weighty consideration and concern.

THE INFECTION OF CANCERS.

Ulceration opens the portal of entry for organisms. This is unfortunate. Ewing has observed that tumor cell mitoses are much more numerous in an infected part of a tumor than in a non-infected part of the same tumor. Pyogens and saprophytes of all orders complicate the ulcerative lesions of the skin, mouth, stomach, intestines, rectum, cervix uteri and bronchus. The resultant inflammation in the tumor has the same characteristics as infection elsewhere.

Acute phlegmonous or suppurative infections are but transient episodes in the history of any cancer; the majority of infections are subacute or chronic. A predominance of polynuclear neutrophils, red blood cells, macrophages, eosinophils, and infant connective tissue cells indicates the acuteness of the infection; the accumulation of small mononuclear cells, the abundance of fusiform cells and collagenous fibers indicate a tendency to sclerosing proliferation. Sclerosis is protective as well as inflammatory. The proteolytic digestion of enormous necrotic and suppurative cancer areas, contributes to the fever induced by the infection. Microbic infection may occur not only in the primary tumor, but may accompany the metastatic tumor deposits in the regional lymph glands.

Erysipelas with diffuse and tubular lymphangitis occasionally attends cancers of the skin and mucous membrane. W. B. Coley observed spontaneous regression of a skin sarcoma following erysipelas infection, and from this occurrence, conceived of the preparation of a bacterial toxin for the treatment of sarcomas (the well-known Coley's toxin). I have observed the healing of an ulcerative endothelioma of the parotid gland after the complication of facial wound erysipelas.

Ulcerative cancers of the floor of the mouth are frequently followed by large adeno-phlegmons of the neck. A contributing cause for this is the common extension of the sublingual glands through the muscles forming the floor of the mouth. Diffuse phlegmons of the pelvis minor are not uncommon in the presence of cancers of the rectum and prostate.

The most dangerous cancerous fistulas are those which communicate the trachea and esophagus. The most frequent cancerous fistulas are those which open be-

tween the vagina and urinary bladder, or between the vagina and rectum, or in the male between the urethra and rectum.

HEMORRHAGE.

The blood vessels of the cancer, the same as those which supply normal tissue, are sensitive to vasomotor influences, so in certain cases can become passively or actively congested. Under such circumstances an important hemorrhage can issue from an insignificant vascular lesion. In sarcomas and large carcinomas of the kidney, testicle, and ovary, infactions frequently result in extensive interstitial hemorrhages. The friability of tumor tissue, the mechanics of slight traumas, the changes in temperature and inflammatory congestion and necrosis by bacterial action, are the contributing causes to hemorrhage.

Infection provokes the development of a richly vascular granulation tissue. As a rule the hemorrhage occurs from the tumor proper and not by contact with the tissues which it invades. The separation of large sloughs, produced by necrosis and infection, often causes violent hemorrhage, when the necrosis is too rapid to permit the included blood vessels to become protectively closed against hemorrhage by obliterative endarteritis.

Oftentimes it is a sudden and unexpected large hemorrhage, which reveals to the patient the existence of a cancer of the stomach or of the uterus. The direct hemorrhage from cancers of the tongue, the blood in the vagina from uterine cancer, the melena in cancer of the rectum, and hematemesis in cancer of the stomach are of diagnostic and prognostic significance. One occasionally sees in a cancer of the cervix, an arteriole of large calibre, giving rhythmic jets of blood, so as to necessitate ligation. Rupture of a great vessel as jugular vein or lingual artery, may result from cancerous infiltration of its wall and lead to profuse hemorrhage and death.

THE SPECIFIC VISCERAL COMPLICATIONS OF CANCER.

THE BLOOD.

Researchers have sought for a definite, unique hematologic form of cell or plasma constituent, which would give a specific sign of cancer, or serve as a prognostic evaluator, but these efforts have been futile. In addition to hemorrhage, most authors concede a direct influence of the cancerous process on the hematopoietic system. They have said that the habitual cancer anemia is established as the result of a sort of equilibrium between the hematoxic and myelotoxic action of the cancer, on the one hand, and hematopoiesis on the other. The hematologic syndromes are those of either a simple or a pernicious anemia, *i. e.*, orthoplastic or dysplastic.

When anemia appears in the cancerous person, it is usually a simple, secondary form. The red blood cells have their normal form; their response to hypotonic fragility tests is normal. The sedimentation time is normal. The coagulation time and bleeding time are normal, therefore the accidental profuse hemorrhages are strictly local phenomena and are not expressions of a generalized blood dyscrasia.

Nucleated red blood cells are rarely found in the simple secondary anemias. If the red blood count is fairly high and yet normoblasts occur, it may suggest metastasis to the bone marrow. Such a condition is termed myelophthisiccanemia. Data from the Mayo Clinic indicate that anemia is quite common in cancers of the ascending colon and cecum, less so in those of the transverse colon and progressively less common as the rectum is approached.

One is occasionally surprised to observe an erythrocyte count of 4,500,000 with 80 per cent hemoglobin in a cancerous patient, who appears very pale and anemic. This pallor is different from the ochrodermia of chlorosis and the pallor of simple secondary anemia.

In the very rare pernicious form of anemia in the cancerous patient, the hemoglobin percentage is below 50 per cent; there is an increased fragility of the erythrocytes, a diminished coagulability of the blood and a progressive course. The bleeding time is as high as 25 minutes. Normoblasts abound and poikilocytosis exists.

There are no specific changes in the white blood counts in cancer; infection of the cancerous area elicits the usual response.

THE DIGESTIVE TUBE.

Of all the accidents which accompany the development of malignancies of the digestive tube, the mechanical troubles are the most common. In the early siege of cancer of esophagus, pylorus or intestine, it is some interference with passage of the bolus, which often reveals the tumor.

Cancer of the pharynx and esophagus do not cause stomach troubles if the patient can be made to eat. The appearance of the signs and symptoms of gastro-intestinal dysfunction indicates always that the patient has entered into the period of complications. In fact, during the course of evolution of gastric cancer, the digestive symptoms are usually slight and are ignored.

The complications of gastric cancer are stenosis, anemia, cachexia, hemorrhage, uremia and hepatic insufficiency due to indirect action on the kidneys and liver. The gastric functions remain excellent for a long time in patients having cancer of the rectum or large intestine.

Carcinoma of the esophagus is sometimes complicated by lung abscess. Papillary, pedunculated and polypoid tumors of the small intestine occasionally become incorporated in intussusceptions because of peristaltic traction on the exposed body of the tumor.

THE LIVER.

Metastasis into the center of the liver is often silent and is discovered only at necropsy. Cancers of the ampulla of Vater, of the head of the pancreas, of the gall-bladder and of the stomach with malignant lymphadenopathies, produce alarming symptoms which attract the attention of the patient. Even incomplete obstruction of the bile ducts will occasion dilatation of the biliary canals, bile stasis, augmentation in liver volume, icterus, suppressions of biliary function and digestive disturbances.

Courvoisier's law owns many exceptions, but it is generally true: In jaundice due to pressure on the common bile duct from without, as from cancer of the head of the pancreas, the gall-bladder is distended, whereas in jaundice due to impaction of a stone in the common duct the gall-bladder is usually contracted. The icterus of cancer is further distinguished from the icterus of lithiasis by the fact that the former is followed usually by fever and disorders of hepatic insufficiency. It is very important to realize that infection of the biliary passages is the rule, in those cases where obstruction is caused by a neoplasm.

Oftentimes the icterus is the only symptom or the only clinical expression of the disease, and the cause of it may be problematical, requiring roentgenological explorations, fecal examinations and researches into pancreatic insufficiency. This icterus is a grave, mortal condition.

THE PERITONEUM.

The most banal of all peritoneal responses to adjacent cancers is a localized inflammation or peritonitis in the neighborhood of the neoplasm, which causes adhesions and enclosed spaces containing serous exudate. A plastic inflammatory reaction always accompanies cancerous infiltration of the peritoneum. Cancers of the rectum, prostate, uterus, intestine, kidney and pylorus produce this type of peritoneal condition.

It is remarkable that most of the cancers of the rectum, uterus, sigmoid colon, cecum

and urinary bladder do not provoke ascites frequently, whereas it is very common after metastases from stomach and testis. The ascites of cancer is never comparable in volume with that accompanying portal cirrhosis of the liver. The ascitic fluid is a lemon yellow, clear, slightly fibrinous, occasionally hemorrhagic exudate, which may show the cell-groups of Foulis, on microscopical examination of the centrifuged sediment.

Chylous or milky non-inflammatory ascites may follow occlusion of the thoracic duct.

The classic type of fulminating general peritonitis is exceptional in cancerous individuals. It occurs as a terminal infection, in consequence of a precocious perforation of a cancer or of an intestinal obstruction, especially of the large intestine. However, malignant ulcers of the gastro-intestinal tract seldom perforate. The suppurative peritonitides accompanying secondary peritoneal cancers, are always localized, blockaded pockets of pus; for example, one seldom observes subdiaphragmatic abscess complicating abdominal cancer.

THE LUNG.

The tolerance of the pulmonary parenchyma to the development of neoplastic growths is remarkable. Tuberculous infection of a comparative degree causes considerable anatomical and functional disorders, but the more important neoplasms propagate in silence. The evolution of pleuro-pulmonary cancers is usually insiduous. Dyspnea and expectoration do not appear in the majority of cases until after bronchial ulceration occurs.

Obstruction of a bronchus by an invading cancer causes atelectasis of the adjacent lung, accumulation of secretion within the bronchioles and the development of broncho-pneumonic foci. Broncho-pneumonia is also a terminal infection, frequently occurring by aspiration in cancers of the mouth, pharynx and larynx.

The invasion of the pleura by cancer often produces no inflammatory reactions. The pleura is not as sensitive to neoplastic infiltration as is the peritoneum. Sometimes a clear, greenish-yellow, fibrin-poor, pleural effusion will appear, but possibly a concomitant infection is necessary to induce this transudation. The presence of a sanguinous liquid in the pleural sac, which is insisted upon by some authors, is the exceptional rather than the usual finding. Such a fluid indicates a special kind of pleuritis, or possibly the degeneration of a pleural tumor, such as the vegetating endothelioma of the pleura.

Pulmonary gangrene and pleural empyema are very rare complications. Cancer of the pharynx may cause stertorous breathing or snoring. Cancer of the larynx may cause stridulous breathing or stridor. Cancer of the trachea or pressure against the trachea by extra-tracheal tumors may obstruct it to produce the peculiar leopard growl.

THE MEDIASTINUM.

The disturbances produced by mediastinal tumors are variable and depend on the tissues compressed and the location of the enlargements. The symptoms are directly due to irritation and compression of such structures as nerves, bronchi, heart and blood vessels. The two functions most interfered with are respiration and circulation.

Dyspnea is the first and often the only sign of mediastinal neoplasm; the following types occur—effort dyspnea, dolorous dyspnea and dyspnea in the form of nocturnal asthma. The cardiac difficulties are due to displacement of the heart resulting in tachycardia, arrythmias and the syndrdmo of myocardial asthenia.

Stoke's sign is an edema and cyanosis of the neck, face and upper extremities following partial obstruction to venous return through the superior vena cava. Death may be due to broncho-pneumonia,

embolism, myocardial failure or cardiac thrombosis.

Dysphagia from esophageal obstruction is uncommon. Involvement of a phrenic nerve has resulted in persistent hiccough. Malignant tumors of the upper mediastinum may press against or irritate or destroy the recurrent laryngeal nerves, causing the brassy or "goose" cough, or may result in the asphyxia of bilateral abductor paralysis.

THE CARDIO-VASCULAR SYSTEM.

The capillaries of the host are intimately associated with the parasitic cancer. Sarcomas and some epitheliomas may perforate into the lumen of the vessel to form vegetating masses, which frequently are the source of emboli. Some of the blood vessels of the cancer are converted into hyaline cords by a sclerosing inflammation in their walls. Inflammation is more destructive of large blood vessels, than is the neoplastic process. Obliteration of the nutritive vessels in the pedicle of a pedunculated tumor results in immediate necrosis.

Lymphedema of an upper extremity, either subsequent or unrelated to axillary dissection for cancer is of unknown cause. Handley states that interference with lymphatic drainage following removal of the axillary lymph nodes is insufficient cause. Although the clinical aspect of the condition is that of a thrombosis, necropsy reveals that all the large veins from the arm are permeable. Infection or cancerous infiltration may induce cicatrical contraction which exerts external pressure on these large veins resulting in this peculiar condition.

Phlebitis-phlegmasia alba dolens occurs in some vessels as a complication of an infected cancer. A rather sudden and deep pain followed by edema is the usual course of events. After an interval of three to four months, the edema is resorbed and the arm or leg regains its former function. As in other types of phlebitis, embolism is always a possible danger. Massive gangrene may follow embolism in an artery of an extremity.

The endocarditis of cancer is a local expression of a diffusion of an infectious precess. From a practical point of view, this is certainly one of the more important systemic complications of cancer. The endocarditis of cancer is not frequently recognized by cardiologist or cancerologist, who incorrectly consider it as a terminal or coincidental infection. Endocarditis develops frequently in patients having greatly ulcerated cancers of the rectum, uterus or face. The primary endocardial lesion is an ulcer upon which a thrombus develops secondarily. It is a subacute affair and resembles the endocarditis lenta produced by the streptococcus viridans. From this thrombotic lesions, secondary embolic foci occur in liver, kidney, etc., but produce only subacute lesions.

THE KIDNEYS.

At necropsies performed upon individuals who died of cancer, definite evidence of more or less important renal lesions are discovered but clinical examinations upon many of these same patients find inconstant renal dysfunction. Of course, cancer can occur in a person who has had chronic nephritis for years. Nor is the nephritis occurring in a cancerous patient, necessarily dependent on the neoplasm.

The rather common toxic-infectious nephritis is a true complication and part of the secondary infectious syndrome which follows ulceration and infection of the cancer. It sometimes occurs concomitantly with the subacute thrombotic endocarditis, previously mentioned. The glomeruli are dilated and engorged with blood and the capsule is distended with serofibrinous exudate. Between the tubules and in the interstitial spaces are found accumulations of mononuclear and polynuclear cells. There is a relative obliguria—400-800 cc. and never a hematuria. Renal tests inform one about this condition far sooner than physical examination does.

The knowledge of this nephritis is of considerable prognostic importance.

Death from kidney disease is the rule four times out of five in cancer of the uterus. With a few exceptions, this is the usual method of termination for persons having cancer of the bladder or prostate. Renal insufficiency is a frequent cause of death in cases of rectal cancer.

Urinalysis demonstrates that nephritis always precedes cachexia and indeed may be the chief cause of it. One must discard the opinion that cachexia results from the absorption of products from tumor tissue, because of the absence of signs and symptoms of toxemia following acute regression of enormous myelogenous spleens and mediastinal lymphosarcomas after roentgentherapy.

Compressions of the ureter or ureters is not only caused by enormous neoplasms which transform the pelvis into a cancer en bloc (frozen pelvis), but also by small tumors so placed as to obstruct the ureter (uretero-cystic orifice). Sometimes this constitutes the first sign of parametrial invasion of uterine cancer. The consequences are well known, viz., hydronephrosis, pyelitis and uremia. The distention of the kidney pelvis is slowly progressive, due to the persistent function of the glomeruli. The hydro-nephrosis may occur in a kidney that is already the seat of a toxic-infectious nephritis. If cystitis is present, the hydronephrosis may be transformed into a pyelonephritis, which in turn occasionally leads to a perirenal abscess.

SUMMARY.

Most cancerous individuals die from complications rather than from the natural progress of the disease.

By the time a cancer has caused stenosis of a visceral lumen sufficient to evake symptoms, it is very late in its course.

Ulceration and hemorrhage are critical local events in the history of ay cancer.

Infection usually hastens growth of the cancer and handicaps therapeutic measures.

Polypoid tumors of the small intestine occasionally become incorporated in intussusceptions.

The complications of gastric cancer are stenosis, anemia, cachexia, hemorrhage, uremia and hepatic insufficiency.

The hematologic syndromes of cancer are those of either a frequent secondary anemia or a very infrequent pernicious anemia. If the red blood count is fairly high and yet normoblasts occur in some abundance, it may suggest metastasis to the bone marrow.

The obstructive icterus of cancer is distinguished from the icterus of lithiasis by the flexible application of Courvoisier's law and by the fact that the former jaundice is followed usually by fever and disorders of hepatic insufficiency due to resultant infection of the biliary passages.

It is remarkable that most of the cancers of the rectum, uterus, sigmoid colon, cecum and urinary bladder do not provoke ascites frequently, whereas it is very common after metastases from stomach and testis.

The pleura is not as sensitive to neoplastic infiltration as ns the peritoneum.

Dyspnea is the first and often the only sign of mediastinal neoplasm, the following types occur—effort dyspnea, dolorous dyspnea and dyspnea in the form of nocturnal asthma.

Stoke's sign is an edema and cyanosis of the neck, face and upper extremities following partial obstruction to venous return through the superior vena cava. It is frequently observed late in the history of a mediastinal tumor.

Lymphedema of the arm following primary or secondary auxilliary tumors, before or after operation is due to infection

or cancerous infiltration with cicatricial contraction, which exerts external pressure on the large veins draining the limb.

The endocarditis of cancer is frequent in patients having greatly ulcerated cancers of the rectum, uterus or face. It is subacute in course and resembles the endocarditis lenta produced by the streptococcus viridans.

Toxic infections nephritis and obstructive urinary lesions are very common complications of cancer. The majority of patients having cancer of the uterus, prostate or urinary bladder, and a large number of those having rectal cancer die from secondary kidney disease.

GLANDULAR FEVER WITH REPORT OF A SMALL EPIDEMIC IN A LOCAL ORPHANAGE.*

I. I. LEMANN, M. D.,†

NEW ORLEANS.

Ten boys ranging in age from eleven to seventeen from Hope Haven, a local orphanage located in the open country directly across the river from New Orleans, were admitted to the wards of Touro Infirmary in the period from June 3 to July 21, 1927. The total population of the orphanage was only sixty-five. The complaints of the patients, the course of their disease, the findings on physical examination and the results of laboratory investigations were so closely parallel in all ten cases as to leave no doubt that we were dealing with an epidemic of some sort. The disease was very mild and none of the boys were very sick. About six of these patients I saw, the other four were seen by my colleagues Drs. C. L. Eshleman and J. C. Cole.

The illness was characterised by a sudden onset, usually with headache. One boy had a chill, two had abdominal pain, two vomited at the onset, one complained of burning eyes, none had sore throat. The fever rose usually to 103° or 104° and in one case as high as 105°. Even the last patient was not very ill at the height of his fever. The fever lasted four or five days and terminated by crisis. In only one case did the fever last more than five days; here it lasted eight days. Aside from the headache there was litle discomfort—not even as much malaise as one ordinarily expects with fever to these levels. There was not even the usual anorexia. As soon as the fever was gone the boys were eager to be up.

All the boys were well nourished. The heart and the lungs were normal in all but one case; here it is recorded that a loud systolic murmur was heard. Every boy except the first one admitted showed a definite enlargement of the lymph nodes. It is possible (and probable) that this first boy also had an adenopathy which was overlooked. In the other nine patients the cervical glands were enlarged in 4 cases, the submental in 1 case, the epitrochlears in 6 cases, the axillary in 1 case and the inguinal in 6 cases. The spleen was enlarged in 4 instances. The spleen was found enlarged in a fifth case where the boy was re-admitted a second time a month after his first admission. Reference will be made again to this later on. I noted in four cases a fine, discrete papular rash, like the rose colored spots of typhoid on the chest and abdomen. These spots would fade on pressure, promptly to return. Indeed the occurrence of this rash and the enlargement of the spleen at first aroused the suspicion of typhoid, particularly when it was evident that we were dealing with some epidemic disease. The course of the illness, however, soon made this diagnosis untenable. The blood cultures were all negative. The agglutination test of the blood with B. typhosus in dilutions of 1 to

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60 were negative. The rash aroused too the suspicion of typhus (or Brill's disease) and of dengue. As to the former, there was no prostration nor any clouding of the sensorium. As to the latter, there were lacking entirely the severe pain of "break bone" fever. The constant adenopathy could not be explained by any of these hypotheses. At the time no diagnosis was set and the histories were recorded as of "fever of unknown origin." Recently I have again reviewed these histories and feel that we are justified in regarding this small epidemic as one of glandular fever.

TABLE I.

Case	Mode of Onset	Termination	Max. Temp.	Pulse	Spleen	Lymph Nodes Enlarged	Eruption
1.	Vomiting Fever Headache	5 da. crisis	104.6°	80-125	—	None	+
2.	Vomiting Headache Fever	4 da. crisis	105°	80-110	+	Epitrochlear Inguinal	—
3.	Headache Fever	2 da. crisis	103°	100-105	?	Submaxillary Axillary	—
4.	Headache Pains in abdomen	5 da. crisis	102.6°	80-122	—	Epitrochlear Inguinal	+
5.	Burning of Eyes	8 da. crisis	104°	86-118	+	Epitrochlear Inguinal	—
6.	Headache Fever	4 da. crisis	104.4°	80-115	—	Cervical	—
7.	Headache	3 da. crisis	102.6°	80-112	—	Cervical Inguinal	+
8.	Fever	5 da. crisis	102.6°	95-100	+	Epitrochlear Inguinal	—
9.	Chill	5 da. crisis	104.2°	100-120	—	Inguinal	+
10.	Headache Pains in abdomen	3 da. crisis	103.4°	90-110	—	Epitrochlear Cervical	—
11.	Headache Fever	8 da. crisis	100.2°	80	—	Inguinal Cervical	—
12.	Spells of weakness for 8 Mos.	Irregular Curve	104°	80-125	+	Inguinal Cervical	+

Although it is now forty years since Filatow in 1885 and E. Pfeiffer in 1889 first described a fever characterised by an adenopathy, practically no progress has been made in establishing this as a distinct clinical entity. Baldridge, Rhoner and Hansmann[1] in 1926 report: "There have been more than one hundred and ten articles published on glandular fever and about half as many articles on similar or identical conditions variously named." Since their report, the Quarterly Cumulative Index shows fourteen articles listed under the title of glandular fever or infectious mononucleosis. Definite clear cut epidemics have been reported in England, on the continent and in this country. The largest of these was by Guthrie and Pessel[2] in 1925. They observed an outbreak of three hundred cases in the student body of about five hundred boys ranging in age from thirteen to eighteen in the Lawrenceville School, Lawrenceville, N. J. The next largest epidemic is that reported by J. Park West[3], 96 cases in a small town in Eastern Ohio. Baldridge, Rhoner and Hansmann[1] saw 32 cases in the first six months of 1925 at Iowa City, Iowa. Besides the definite epidemics varying in size, many sporadic cases have been reported; thus Baldridge and his associates had seen 18 cases scattered from 1914 to 1924 and Longcope[4] in New York had observed 10 cases from 1909 to 1922.

ETIOLOGY

In spite of well planned investigations such as cultures from the throat, blood, and extirpated glands, hematological studies and histological studies of extirpated glands, no one has been able to discover the cause of the disease. Streptococci, staphylococci, organisms of Vincent's angina, diphtheroid organisms have at times been found and suggested as the etiological factor but no definite basis for the assumption of any of these has been adequate ly established. Our knowledge of the disease is practically entirely clinical since there is no mortality. A few deaths have been reported but in none of these is it well established that the case by right belongs in the group which we are now discussing.

EPIDEMIOLOGY

I have already indicated the wide distribution of the disease. The present epidemic is as far as I know the first to be reported from this section. Dr. Chaille Jamison[5] read a paper in 1923 before the Louisiana State Medical Society on glandular fever but he made no reference to cases seen by him. Evidently children and young adults are more susceptible than older people. The definite epidemics have broken out practically entirely among children and adolescents. Byers'[6] 33 cases ranged in age from thirteen months to twenty-five years. Longcope's 10 cases (non-epidemic) ranged in age from twelve to thirty. In the series of Baldridge, Rhomer and Hansmann, the youngest was six and a half years and the oldest forty. The incubation period is said to be between five and nine days.

SEASONAL DISTRIBUTION.

The time covered by the epidemic reported by Guthrie and Pessel[2] was from the latter part of September to the third week in November, 1922. In J. Park West's[3] series, 1 case occurred in September, 1 in October, 13 in March, 12 in February, 12 in November, 11 in January, 10 in May, 8 in December and 6 in April, 1896. No cases occurred in June, July and August. Baldridge, Rhoner and Hansmann[1] report that their epidemic began in December, reached its height in March and extended through the first six months of 1925. It will be noted that the present epidemic occurred in the summer, at the very time when West had no cases. It would appear that the disease may occur at any time of the year.

SYMPTOMATOLOGY

In addition to the enlargement of the glands and the fever, the following have been noted in a large percentage of the cases: general malaise, headache, chills, sore throat, enlarged tonsils, enlarged spleen, enlarged liver. In some cases addominal pain and tenderness have been noted. Longcope observed a macular eruption of small, dull red spots in some of his cases. Baldridge and his associates have compiled a long list of various symptoms and physicial observations, some of which perhaps stood in no special relation to the specific disease. Guthrie and Pessel believe that although one hundred and twelve boys were actually admitted to the infirmary, a very much larger number actually had the disease in so mild a form that they were treated as ambulatory patients. Because at a subsequent physical examination of all the boys in the school a surprisingly high incidence of marked general glandular enlargement was found, they believed that there has been over three hundred cases in the school. Others have also referred to the exceedingly mild character of the attacks in other epidemics. This corresponds to our experience here for we believe that the ten patients whom we received in Touro Infirmary by no means represent the total incidence at Hope Haven. Dr. D. D. Warren, who went out to inspect Hope Haven and to look at the other boys during the time we were receiving sick ones at Touro, tells me that other boys, probably as many as fifteen, were sick at this time but in so mild a fashion, that it was not considered neces-

sary to send them in to the hospital. Dr. Warren and I recently inspected fifty-seven of the boys at Hope Haven (April 6, 1928) nine months after the epidemic and found in all very definite enlargement of the lymph nodes. The nodes varied in size from that of a pea to that of the distal phalanx of an adult thumb. Many of the boys had a general adenopathy, the cervical, epitrochlear and inguinal glands being involved; others exhibited enlargement of ony one group. Practically all of them had inguinal gland enlargement. Although the epidemic is usually represented by a febrile attack of from two to five days, there have been cases in which the glands re-enlarge and become tender at variable periods after the initial attack. "Such recurrences are often associated with some fever and many of the symptoms of the original infection. We have followed one patient through four such attacks in the last three years. The spleen is usually enlarged only a few days but we have one patient in whom the spleen was much enlarged at the onset and has remained palpable for seven years without known cause."[3] Two of our patients from Hope Haven were re-admitted a few weeks after their first admission. E. J., was admitted June 13, 1927, on the first day of his illness and had a crisis on the fourth day, his temperature having risen to 105°. His spleen was palpable and he had enlarged epitrochlear and inguinal glands. The tonsils were greatly enlarged. He was re-admitted September 2, with the story that he had felt perfectly well until that morning when he awoke with a severe frontal headache. His tonsils had been removed six weeks before, that is to say July 23, 1927. On this second admission the temperature rose to 103° and fell by crisis after two days. The spleen was palpable. The submental and axillary glands were enlarged.

C. O. was admitted July 29, 1927 with headache, fever and abdominal pain. The illness had begun one week before with headache and fever. In the hospital his temperature did not rise over 100.2° and fell to normal the day after his admission. His cervical and inguinal glands were enlarged. The spleen was not palpable. His tonsils had been removed three weeks previously. He was re-admitted on August 29, 1927, with a fever of 100° which ran an irregular course, rising as high as 104.2° on September 2, 1927. His spleen was large and hard. He had marked enlargement of the cervical and inguinal glands. On September 5 when his temperature was 100.8°, having previously fallen to normal, quinine was begun and he received seventy grains from 8 P. M. September 5 to 8 P. M. September 8. The termperature did not rise until September 10. From the eleventh to the thirteenth it rose to 99.4°. There is, of course, a question as to whether the quinine caused a decline of the temperature. No plasmodia had been found in the blood.

HEMATOLOGY

Guthrie and Pessel[2] found early in the disease a moderate polymorphonuclear leukocytosis and later counts showed in many instances normal or slightly subnormal total count with an increase in the lymphocytes. Baldridge and his associates[1] found a total leukocyte count usually above normal at the onset and below normal in the convalescence: "A polymorphonuclear leukocytosis may occur at the onset, especially in cases with marked febrile reactions. Sometime during the course the blood shows a rather marked increase in mononuclear cells." Longcope[4] found during the first week of the disease: "An absolute and relative increase in the mononuclear cells of the blood with a slight but distinct decrease in the total number of granular cells. Total leukocyte count at the onset from 9,800 to 26,200. This high leukocyte count lasted only a few days. There was a steady increase in the non-granular mononuclear cells definitely from the seventh day, reaching its height usually about the tenth or fourteenth day.

Following this there with a decrease in the total leukocyte count was a gradual reduction in the mononuclear cells". Many observers have called attention to the abnormal character of the mononuclear cells occurring sometime during the course of the disease. Guthrie, however, comments that "In no instance was a blood picture encountered that was nearly so striking, particularly in regard to the increase of immature lymphocytic cells, as that presented in the case we have seen of "infectious mononucleosis" in young adults. It is entirely probable that such conditions were present but escaped recognition as we did not make daily examinations of the blood over a long period in any of the patients." This unfortunately was also the case with us. An average of only one blood count was made on each patient in our series. Reference to the accompanying table will show that most of the patients had normal or subnormal leuckoyte counts. There are three counts of 4,000 or less and only four above 6,000. The highest was 12,000. This variation may have been due to the fact that some of the counts were made early in the attack, others relatively later. I have indicated on the chart the day on which the counts were made. It will be noted that a few of them showed abnormally large percentage of mononuclear cells. No detailed study was made of these cells.

TABLE II.

BLOOD PICTURE

Case	Leukocytes	Neutrophils Per Cent	Small Mononuclears Per Cent	Day
1.	3,500	60	33	3
2.	8,000	60	27	2
3.				
4.	6,500	59	26	5
5.	12,000	85	13	5
6.	5,000	44	52	4
7.	3,600	60	40	3
8.	4,000	26	54	6
9.	5,500	70	28	3
10.	9,500	74	20	1
11.	8,000	50	46	9
12.	5,100	55	43	4

RELATION OF GLANDULAR FEVER TO INFECTIOUS MONONUCLEOSIS

Guthrie says: "If as has been suggested, infectious mononucleosis represents merely the picture produced by sporadic incidences of glandular fever in young adults, it may be that the effect on the blood is actually somewhat different from that produced by milder attacks occurring in epidemic form among young people." Baldridge and his associates also comment on "the fact that the percentage of mononuclear cells averages much higher in sporadic cases than in epidemic cases." I, too, have the same impression. Recently, there came under my observation a young man, aged 25, a resident of New York who while on a visit to relatives here developed at the end of last December an irregular fever which lasted more than a month. At no time was he very sick. He had no complaint except occipital headache and a general malaise when the fever was present. The physical examination revealed nothing beyond a slight pharyngitis and an enlargement of the cervical glands. One at the angle of the jaw was still the size of a small marble and tender one month after the onset. The left submental gland was also still palpable and tender. The spleen was never enlarged, though repeatedly searched for. The blood pictures were, as follows: red blood cells 6,170,000; white blood cells 8,100; polymorphonuclears 63; large mononuclears 6 2/3; small mononuclears 25; eosinophils 5; and basophils 1/3 per cent.

1-25-28—Red blood cells 5,345,000; white blood cells 8,250; polymorphonuclears 20; large mononuclears 5; small mononuclears 63 and eosinophils 2 per cent.

2-11-28—Red blood cells 5,580,000; white blood cells 8,100; polymorphonuclears

57 1/3; large mononuclears 4; small mononuclears 36 and eosinophils 3 2/3 per cent.

I am inclined to look upon this as a sporadic case and call attention to the transient mononuclosis. If there is really a difference such as indicated by Guthrie and Baldridge and now by myself, one may ask whether actually the epidemic and the sporadic cases are examples of the same disease. I am also impressed by the constant reference by reporters to the occurrence of sore throat and even of membranous angina. In view of the leukopenia and the mononucleosis, I am led to ask what is the relation between such cases and agranulocytic angina and what the points of differential diagnosis between the two? True, agranulocytic angina is nearly always fatal, glandular fever (infectious mononucleosis) never fatal. I have recently, however, seen an old woman, age 70, recover from agranulocytic angina. In both conditions the etiological factor is unknown. Both represent unusual and abnormal reactions of the recitulo-endothelial system to infections. Is the difference of this reaction merely one of degree or intensity? In this connection, too, there comes to mind the mononucleosis which has been noted in various conditions not apparently related to epidemic glandular fever or even to the sporadic glandular cases. These would seem to represent abnormal reticulo-endothelial reaction to varying invading organisms and not to represent a true distinct entity. Such a case was that of a young man, aged 21, who after a carbuncle of the back developed a septicemia which in turn was followed in his convalescence by an enlargement of the spleen and a mononucleosis. At the time of his carbuncle and even in his convalescence he is reported to have had a leukocyte count of 13,000 with 82 per cent of polymorphonuclears. Following this he had a little redness and slight edema of his throat. A little later his spleen was found enlarged to two fingers below the costal margin. Then the leukocyte count was 11,600 with 81 per cent of (very) large mononuclears, 4½ per cent of small mononuclears, 13 per cent of polymorphonuclears and 1 per cent of eosinophiles. The count in two weeks shifted to 11,200 leukocytes, 68 per cent of small lymphocytes, 5 1/3 per cent of large lymphocytes, 22 2/3 per cent of polymorphonuclears and 4 per cent of eosinouhils. Gradually the lymphocytosis diminished and with this there was a surprising eosinophilia to as high as 11 per cent. This eosinophilia in turn gradually disappeared. After two months the blood picture was almost normal and two months later it was quite normal.

SUMMARY

Report is made of a small epidemic of glandular fever. Ten cases were observed but there were probably twenty-five or thirty boys ill out of a total boy population of sixty-five. The relation is discussed of epidemic glandular fever to sporadic cases with glandular enlargement and mononucleosis, to agranulocytic angina and to mononucleosis occurring in varying infections.

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DISCUSSION

Dr. D. D. Warren (New Orleans): There is no doubt in my mind but that this was a real epidemic. I was associated with this institution when the epidemic broke out. In going over every boy who came in we would make an examination of the glands and heart. So many had a small amount of fever and adenopathy that I tried to admit them into the Hospital, but soon realized I would be unable to do so. I therefore opened a room out at Hope Haven, isolated it and put the remainder of the boys there. When I told Dr. Lemann that the number taken care of over there was fifteen, I was being conservative. I really believe that a great many more than one-half of these boys came down with this glandular fever. I am not going to call it infectious mononuclesosis.

In looking up glandular fever I find "glandular fever or infectious mononucleosis." Something is wrong somewhere. In the glandular fever epidemic reports of Gutherie, Longcope, and others their epidemics did not show the typical blood picture of infectious mononucleosis. If this is the same disease, glandular fever is the better term.

It is interesting to note that while these boys were sick, none of the attendants came down with it. As I remember there were about ten attendants.

Also, at the beginning of the epidemic, it just happened that every boy who was taken sick was working in the dairy. I at once thought of the possibility that it was some disease carried by cows and notified the State Board of Health. We did not get any definite report as to what they found. I believe they thought it was cow pox, due to two infected cows which they found.

I wish I had had the opportunity to examine these boys before this epidemic. We know nothing of the adenopathy they showed before then. I know, as a rule, you do find the lymph nodes enlarged. This was different. These boys did not have little palpable nodes. It was not unusual to find an epitrochlear node as large as the end of the middle finger; inguinal nodes larger than the end of the thumb; there was real adenopathy.

It is also interesting to note that the first case, the only case that showed any gastro-intestinal symptoms, came on suddenly while the boy was driving the cows to pasture. It began with pain in the abdomen; he was brought immediately into Touro. He ran the same course as the others.

A Wassermann was made in every one of these cases. As to the heart case Dr. Lemann mentioned: I found no heart lesions in any of these boys as they were admitted.

I have under observation now another group of boys at the Waif's Home, of the same age as the boys at Hope Haven. While I do not wish these boys any harm, if they have an epidemic, I will study the disease more thoroughly.

Dr. L. R. DeBuys (New Orleans): We should all feel indebted to Dr. Leman for his interesting and thorough survey of the epidemic that he has just reported. The term glandular fever is used synonymously with infectious mononucleosis, also with acute infectious adenitis. The pathology of the disease is not definitely known because few of the cases require excision of the gland. In those cases, however, in which the gland does go to suppuration the ordinary pyogenic organisms are found. The epidemics of glandular fever are usually found coincidentally with other epidemics, as for example, influenza.

In the younger individuals the severer involvements of the glands are found. The only cases that I have seen where suppuration has occurred have been in these younger individuals. In Pfeiffer's original description the cases were mostly those of infants. The literature, however, also contains epidemic in young adults. In those cases that go to suppuration no particular specific offending organism has been found. An interesting observation in connection with this disease is that the involvement of the gland is out of all proportion to the amount of infection in the area which these glands are supposed to filter. The glands most frequently involved are those of the neck.

The atrium of infection is believed to be the nasopharynx. It is also believed that perhaps the tonsils are the point of entrance for the infection. Dr. Lemann in his series has reported a patient in whom the tonsils had already been removed. I have also noted such instances, and one case in a child of 7 years had one of the most marked attacks which occured after the tonsils had been removed.

The blood pictures in this series are interesting. Usually the blood picture described in acute glandular fever shows not only a lymphocytosis but a leukocytosis. Undoubtedly this disease offers a field for future investigation.

In closing I want to make one statement with regard to the treatment. In those cases where the gland tends to persist in size or tends to increase rather than to diminish in size nothing will give more spectacular relief than the use of the roentgen-ray. I want to emphasize the deleterious effect of the large dosage of the roentgen-ray. In a series of 10 cases, 3 cases were treated by one radiologist with large doses and 2 of these 3 went to suppuration, and the third had a prolonged convalescence. The dose given was from two-thirds to 1 skin unit. In the other 7 cases one of them went to suppuration. They received one-third of an erythema dose, and most of them had only one treatment. One-third of a erythema dose is therefore quite sufficient and most satisfactory and if it should be necessary to repeat the dose it may be done with further improvement.

Dr. E. D. Fenner (New Orleans): I would like to ask one question—whether these glands were tender or painful, or not?

Inasmuch as the symptoms do not seem to be very definite, the blood picture is not actually

characteristic, the disease is mild and self-limited, and as children are likely to have enlarged glands, I hope we will not have a universal outbreak of glandular fever this year.

Looking around me, I seem to see cases of glandular fever incubating all over the room. I do not think anyone who has listened to Dr. Lemann's paper could doubt that these were in fact cases of glandular fever, and one must be a little envious of the careful and accurate records made of these patients. There occurs to my mind a nonsense verse, by Carolyn Wells, which may not be entirely inapropos to the too rash diagnosis of sporadic cases. It runs:

"All children know, of course, the goose.
See how they gather round the goose-girl's knee,
While she reads them by the hour
From the works of Schoppenhauer.
But do they understand what 'tis she's talking 'bout?
Certainly not! Neither do they, neither does she,
Nor, for that matter, did he!"

Dr. I. I. Lemann (closing): I think that patients with suppurating glands ought to be considered as not belonging to this group, which has been called by some infectious mononucleosis.

As to the tonsils being a portal of entry for the infection, as suggested: Two of our patients had tonstillectomies done, one before the first admission and the other between the first and second admissions. The tonsils were enlarged. This does not necessarily mean, however, that the tonsils were responsible for the enlargement of the cervical glands. Their enlargement might simply be part of the picture of lymph tissue involvement.

As to the suggestion of both Drs. Jamison and DeBuys relative to an outbreak following epidemic of influenza. Baldridge quotes Jamison in a recent article but could not find any evidence to bear out Jamison's statement as to the relation of influenza to glandular fever.

To answer Dr. Fenner's question: The glands were not tender nor painful. As to his implication that perhaps the essayist did not know what he was talking about, I plead guilty. We knew we were dealing with an epidemic and knew it was marked. We did not have a caption to give it except fever of unknown origin. We were impressed by the universal adenitis.

I sympathize with the plea of Dr. Fenner that we do not proceed to find a general epidemic of glandular fever. Please understand that we were dealing with a definite epidemic in a circumscribed portion of the population.

JAUNDICE OCCURRING IN UNTREATED SYPHILIS.*

J. HOLMES SMITH, JR., M. D.,

NEW ORLEANS.

It is the purpose of this paper to present several cases seen by me during the past four or five years in whom icterus was a prominent symptom and apparently the result of syphilitic involvement of the liver.

Considering the volumes which have been written, in recent years, upon the subject of jaundice, comparatively little attention seems to have been paid to any relationship which may obtain between an existing icterus and syphilis as the etiologic agent. A possible explanation for this may lie in the fact that, while syphilis is a very common and widespread disease, obvious jaundice occurring during the course of otherwise readily demonstrable syphilitic manifestations, is comparatively rare.

In Medical Clinic No. 15, at the New Orleans Charity Hospital, a clinic devoted to colored women and having a very large attendance, the percentage of new patients showing a strongly positive Wassermann is some times as high as 30 per cent, and we believe, in addition to this, that at least probably 40 per cent have syphilis as a background for their many complaints. Yet the number of jaundice cases from all causes is quite small. Of the cases showing jaundice, in the absence of positive Wassermann reaction, we at times assume syphilis to be the underlying cause and treat accordingly, but since jaundice frequently tends to be a self-limited condition, one must be quite guarded in making such assumptions.

Considering the great prevalence of syphilitic infections, particularly in the colored race, it does seem strange that syphilitic involvement of the liver, and particularly syphilitic jaundice are not more frequently diagnosed.

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*Read before Orleans Parish Medical Society, March 12, 1928.

Concerning syphilitic liver disease, Osler[1] says: "It is difficult to determine the frequency with which the liver is involved. Once attention has been called to the subject and the special features recognized, the cases are found to be not uncommon; in the records at the Johns Hopkins Hospital during a period of eighteen years there were 30 cases diagnosed as such, while in the post-mortem room among 2500 autopsies there were 40 cases showing gummata or syphilitic cicatrices and 15 additional cases regarded as syphilitic cirrhosis." How different are the statistics of Warthin,[2] who has developed newer methods and criteria for the recognition of syphilitic infection. He says "out of 750 autopsies at Ann Arbor there was evidence of syphilis in 300 cases or 40 per cent, and the liver showed chronic passive congestion and atrophy (brown atrophy chiefly), in every case." The syphilitic lesions varied from slight plasma cell infiltration to brown atrophy, gummata, nd cirrhosis of various types.

If Warthin's figures are correct and there is greater or less liver damage in every syphilitic, it does seem strange that there is not more obvious evidence of it. It is not unlikely that the milder grades of involvement are being overlooked.

Most references to syphilitic jaundice are found in the foreign literature, but several articles have appeared in American journals.

In 1919, Scott and Pearson[3] reported two cases occuring during the secondary stage of the disease and six occurring within three weeks after inauguration of antisyphilitic treatment and attributed by them to a Herxheimer reaction.

More recently, an article by N. Tobias[4] has appeared in the American Journal of Syphilis.

It has been my fortune to observe five cases of jaundice in whom there seems little doubt that the etiologic factor has been the pale spirochete. Of these, four were in colored women and one in a young Mexican woman. In four the Wassermann reacton was strongly positive, and in one, negative; two of the cases were observed during the secondary stage of the disease and the other three during a later period. The cases, briefly, are as follows:

*Case 1.** E. P., colored girl, aged 15 years, first came to the clinic on April 6, 1925, complaining of yellow eyes and skin and dark urine, of two weeks duration. At this time she was looked upon as a case of catarrhal jaundice, was given sodium phosphate and told to return in a week. Upon her return, one week later, the jaundice had become more intense and was pronounced in the sclerae, skin and soft palate; there was a macular eruption over skin of trunk and extremities; the epitrochlear lymphatics were quite prominent and the Wassermann reaction was strongly positive. At this time the urine contained a large amount of bile and the van den Berg reaction for retained bile pigments was: Direct: prompt; indirect, 21 units, suggesting both an obstructive and a toxic or infective jaundice. The blood picture showed nothing of note except a slight increase in the total leukocytes to 10,250. The patient was given deep muscular injections of potassium bismuth tartrate and bismuth salicylate. Her condition rapidly improved and on May 20 the van den Berg test showed, Direct 4.5 units (as against 17.5), and indirect 1.6 units. On July 1 she appeared clinically well and stopped coming to the clinic.

Before reporting the succeeding cases it might, perhaps, be well to make a few brief remarks regarding the treatment of these cases and the tests for bile pigments.

Except in one case where mercurial rubs were employed in the early stage, all of these patients were treated by injections of bismuth preparations deep into the gluteal muscles. At first, potassium bismuth tartrate was used but owing to the amount of local irritation which this preparation seemed to cause bismuth salicylate was substituted. In my opinion the arsenical preparations should not be employed where there is such evidence of liver damage.

We have employed the van den Bergh test for retained bile pigments, routinely, because it is supposed not only to be a measure of the pigment retention but also

to indicate the probable location of the trouble. The icteric index, while measuring the amount of retained bile pigments in the blood, serves no other purpose.

No attempt has been made in these cases to employ any of the dye tests of liver function. In this connection, McVicar and Fitts,[5] of the Mayo Clinic, recently said "functional tests of the liver or pancreas have not yet attained diagnostic value in cases of jaundice."

Case 2. Mrs. C. I., white, Mexican, aged 21 years, first reported at the clinic Feb. 13, 1928, complaining as follows: Two weeks previously she began having a dull ache all over her body and one week ago noticed eyes becoming yellow. For a week she had been vomiting about two hours after meals. No pain before or after food. Urine highly colored. Examination showed the sclerae to be markedly yellow; post cervical and epitrochlear lymphatics were easily felt; over skin of thorax, abdomen and extremities there was a marked macular eruption and the Wassermann reaction was strongly positive. The urine at this time contained bile and some albumin and casts. The van den Bergh test showed: Direct reaction: delayed. Indirect, 30 units, indicating a toxic or infective hepatitis, but no obstructive lesion. She was placed upon bismuth therapy and has been responding very well.

Case 3. J. P., colored woman, aged 50 years, first seen in the clinic Dec. 1, 1924. At that time her complaint was pain, radiating from the middle of the sternum to the right costal margin and right axilla, accompanied by "dumb chills" and followed by fever. Duration three months. In addition to this she has had some jaundice for over a year and has lost about 30 pounds in weight. At times she has headache and dizzy spells. Her appetite was good, but she vomited all food taken. This would account for the loss in weight.

Examination showed a decided icteric tint to the sclerae (this was before we were using the van den Bergh test and we have no measurements of bile pigments in her blood). Otherwise, there was little of note in the physical examination except: B.P. 160/110, and slight rigidity of the upper right rectus muscle. The urine showed the presence of bile. The Wassermann reaction was negative on Dec. 1, 1924, but strongly positive on Dec. 10, 1924. The blood picture showed a secondary anemia.

This patient was given several courses of mercurial inunctions with iodid of potash and by February 23, 1925, she was markedly improved and all jaundice had disappeared. At a later date she was given bismuth salicylate and ultimately came to feel better than she had in years.

Case 4. M. B., colored girl, aged 18 years, first seen April 20, 1927. At that time her complaint was jaundice of ten days duration which was increasing in intensity. She also complained of a painful swelling on the inner side of left thigh and a less painful one on the right thigh. These "swellings" were of the same duration as the jaundice. The history was otherwise unimportant. Examination showed pronounced jaundice of sclerae, soft palate and skin. Left epitrochlear only palpable lymph node. Nothing of note in heart or lungs. In the abdomen, there was some rigidity of the rectus muscles and satisfactory examination could not be made. There were no areas of tenderness. The liver and spleen could not be felt. On the inner side of left thigh was a painful, inflamed nodule about size of a walnut and a similar one, though painless, on the outer side of the right thigh. Wassermann reaction was strongly positive. Urine contained no bile. Van den Bergh test showed: Direct, delayed; indirect, 2.5 units, indicating a toxic or infective process in the liver.

She was given injections of bismuth salicylate twice weekly and by May 16 there was only a trace of icterus and the nodules on the thighs were about gone. Patient failed to return for further treatment.

*Case 5.** M. B., colored woman, aged 35 years, came to the clinic June 8, 1925, with the following history: For about one year she had been feeling sick all over; had pains and aches over whole body which were worse at night; had frequent nausea but no vomiting; was constipated. Recently, she had noticed her eyes getting yellow. A history of two miscarriages was elicited with no other pregnancy. Examination showed a fairly well developed woman who appeared to have lost weight. There was a decided icteric tint to the sclerae and soft palate. About the centre of the soft palate was a small perforation such as is frequently seen resulting from syphilitic infection. No adenopathies were noted. There was nothing particular in chest except an accelerated heart rate. In the abdomen, the liver edge could be felt a short distance below the costal margin. There was some tenderness in the epigastrium. The spleen could not be felt. The Wassermann reaction was negative on three occasions. Urine contained bile with some albumin and hyaline casts. Van den Bergh reaction showed: Direct, biphasic (prompt and delayed); indirect, 15 units, indicating a toxic or infectious condition causing both dysfunction of the liver cells and some obstruction. The blood picture was unimportant. This patient was placed upon bismuth therapy and by July 22 was clinically well, with no evidence of jaundice. She stopped

coming to the clinic and we were unable to secure another van den Bergh test.

This patient is being included in this series because I believe the evidence and results of treatment are proof of the syphilitic origin of her trouble, also, because she represents a type of case seen more frequently than the other members of this series. In this patient, while the Wassermann was negative, the other evidence was almost conclusive.

It seems to me that any discussion of these cases should be preceded by a brief reference to the modern conception of jaundice and the van den Bergh reaction.

McNee[6] has given, what is probably, the clearest, most concise and most easily understandable picture of jaundice, which has appeared in recent years. His conclusions are largely based upon recent studies concerning the relationship existing between the parenchymal (polygonal) cells of the liver and the reticulo-endothelial system. In his study the van den Bergh test has played a prominent role.

It has been found that jaundice is of two grades, first, that in which there is retention of bile pigments in the blood, in excess of normal, but not sufficient to be detected in the skin or sclerotics; this is known as latent jaundice; secondly, that in which the jaundice is visable to the examining eyes. This excess of bile pigments is easily determined by the icteric index, but, theoretically at least, the van den Bergh test is superior because it not only records the amount of bile pigment present in the blood but as mentioned before is also a guide as to the probable location of the pathologic process.

Using the van den Bergh test, it has been noted that bile pigments which have passed through the liver cells and been reabsorbed into the blood, as occurs in obstructive jaundice, will give a reaction very different from bile pigments which have not passed through the parenchymal liver cells. On this evidence two sets of reactions have been evolved for the van den Bergh test; one, the so-called direct reaction, which when present indicates an obstructive condition somewhere distal to the liver cells, and the other, the so-called indirect reaction, which when positive indicates either damage to the liver cells (of a toxic or infectious nature) or an hemolytic process. On this hypothesis, the classification of jaundice into, first, obstructive hepatic; second, toxic and infective; third, hemolytic, gives us something which we can understand and which enables us to more correctly class our cases.

Applying these ideas to the above cases we find that all give a positive reaction by the indirect method, indicating some interference with the function of the liver cells. When we consider that the pathological process is most apt to involve the parenchymal cells, it is rather to be expected that this reaction should be obtained. In addition, several cases gave a prompt direct reaction, indicating that there was some obstructive condition distal to the liver cells.

It might be well to call attention to the fact that there must a rather widespread involvement of the liver cells (in cases of toxic and infectious jaundice) in order to cause considerable retention of bile pigments. Localized conditions, such as gummata, are not apt to cause any retention of pigments and the van den Bergh and icteric index tests would be negative.

Quite recently two cases of arsphenamin jaundice have come under my observation. It seems to me that if the administration of salvarsan were preceded by one or other of these tests for bile pigments (for such purposes the icteric index would be the simplest) we might be able to detect evidence of damage to the liver cells, avoid the use of salvarsan, at least until evidence of trouble had cleared up and so prevent such cases of jaundice.

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DISCUSSION.

Dr. J. H. Musser (New Orleans): In diagnosing jaundice in liver disease it might be well to put down the four great causes of jaundice:

1. Acute Yellow Atrophy.

2. Diffuse Interstitial Hepatitis.

3. Kinking of the Ducts or Obstruction of the Ducts.

4. Acute Parenchymatous Hepatitis.

Type 1 is extremely rare; in all I have seen but three cases. Type 2 gives us our syphilitic cirrhosis, a relatively frequent disease (about 47 per cent). Type 3 is due to obstruction of the ducts resulting in interference with the flow of bile; this may be caused by kinking, pressure, stone, fibrosis, or new growth. In Type 4 jaundice occurs early in the disease and there are various explanations for it.

Dr. Smith has laid a great deal of stress on the importance of keeping away from arsphenamine in the treatment of these patients. His paper does not deal with the jaundice, but calls attention to the danger of giving the drug. This Hextheimer reaction occurs more frequently with syphilitic hepatitis than almost any other condition. We also get in the treatment of this condition sometimes a paradoxical cure in which the patient has a moderate degree of ascites, but in which, despite the fact that the Wasserman is improving, go on with rapidity. I am very glad Dr. Smith called attention to this phenomena in jaundice and syphilis. I do not believe, however, it is quite as rare as he says. It is my impression that it is a bit more frequent.

There is one difficulty, it is a very little difficulty, in the differential diagnosis of these conditions and that is the question of some other condition causing the jaundice in an individual with syphilis. It is not nearly as great a difficulty as it used to be on account of the routine use of the Wassermann reaction. In the old days I know of four or five cases where the patient was operated on for cholecystitis, gall-stones and such conditions and it turned out that the trouble was not with the gall-bladder but a syphilitic hepatitis. Given a person with a positive Wassermann in the present day we would suspect the possibility of syphilitic disease causing jaundice. It must not be forgotten that an acute intercurrent disease, and not syphilitic hepatitis, may be the cause of the jaundice. I remember a case which impressed me very much. The patient had an acute inflammatory lesion of the abdomen, generalized pain, nausea, and vomiting, but she was refused operation because she had syphilitic cirrhosis. She died of a ruptured gall-bladder. Of course, the Wassermann reaction was positive. The same thing applies to acute infectious jaundice. There are many cases of jaundice supposed to be acute hepatitis which nevertheless, as in this case, may be unrelated to the syphilitic lesion.

Dr. F. M. Johns (New Orleans): I have been very much interested in Dr. Smith's remarks on the van den Bergh reaction. We realize the superiority of this test in checking cases of hepatitis and I really believe that it could be put to a more generalized use. It should be correlated with the urine test for biliverdin. It has occurred to me that in severeal cases I was able to detect bile pigment in the urine before the indirect van den Bergh could be demonstrated. With an indirect van den Bergh reaction of 24 to 26 units, which would indicate an extensive parenchymatous degeneration of the liver, you will always be able to demonstrate biliverdin in the urine with Schlesesinger's test which is very easy to perform and which I would recommend in those instances in which the more complicated blood test is not feasible.

Dr. Abe Mattes (New Orleans): In the last five or six years I have had occasion to see in the clinic at Charity Hospital syphilis in all its phases, including jaundice. We had six or seven cases of jaundice that were not given bismuth therapy but were subjected to routine salvarsan administration. There were no tests made, as described by the author and though salvarsan may be contraindicated in these cases, there was nothing of note in this series, for no complications arose.

I regret not knowing the relationship between toxic hepatitis and the damage that salvarsan may do, but as there was no apparent harm resulting from the measures that are employed in early secondary syphilis, I am grateful.

Dr. J. Holmes Smith, Jr. (closing): Probably Dr. Musser misunderstood me about the frequency

of jaundice in syphilis. What I stressed was the fact that I found only five cases of jaundice in the skin that I was willing to accept as due to syphilis. However, there are a number of cases coming in with obvious jaundice. We treat them accordingly, but have no proof that the jaundice is due to syphilis. Many come in, receive no treatment, and get well.

With regard to jaundice and the Herxheimer's reaction, recently in our clinic we have had three or four cases come back from salvarsan clinic with very pronounced jaundice. Only a week ago a patient reported to the clinic, intensely jaundiced, who had received two doses of the drug and had to go to bed for a month before she could come to the clinic. We try to run an icteric index on patients with positive Wassermanns. We are using the van den Bergh test on account of its supposed value to give us an idea as to whether the jaundice is due to obstruction, to a toxic condition affecting the liver cells, or whether it is hemolytic in origin.

With regard to Dr. Mattes' remarks, I have seen cases in the ward with positive Wassermanns given salvarsan and suffering no apparent ill effects, but knowing the effect of salvarsan on the liver, I think it wise to give bismuth and later on, as the condition improves, possibly the salvarsan would be in order.

MODERN TREATMENT OF GONORRHEA.*

H. W. E. WALTHER, M. D.,

NEW ORLEANS.

It is a source of wonderment to many urologists that so many members of the medical profession still adopt a most indifferent attitude towards the subject of gonorrhea. In some localities the physicians openly announce that they do not treat cases of Neisserian infection. In far too many instances, where physicians do administer treatment for this infection, it is carried out in so haphazard a manner as to be of little avail. Just where to place the blame is a difficult matter. Whether the physician was trained improperly while at college; whether the text-books confuse him rather than elucidate a rational therapeutic scheme; or, whether the urologists themselves, in their enthusiasm to bring before their confreres the more spectacular phases of their surgical progress, have failed in their duty of properly keeping the profession abreast of the time—this is a matter for some one better qualified than myself to explain. However, I cannot but feel that the urologist is to blame for much of the misunderstandings within our professional ranks as regards the status of gonorrheal therapy as practiced today. It shall be my purpose to clarify, as best I can, the situation even if we must limit our discussion to the bare essentials.

Before entering upon the subject of treatment I trust you will indulge me a few moments while I recall to your minds a few facts upheld by statistics gathered from sources the reliability of which cannot be questioned. In the first place venereal diseases generally are not on the decrease. There is to be found today just as much, if not more, gonorrhea among men, women and children as was observed twenty-five years ago. This in spite of the fact that sex hygiene is today to be found in the school curriculum of every child in the land. Much propaganda in the form of moving pictures, stage plays, lectures, books, posters, and the like, have for years been directing the attention of the youth of the country to the ravages that follow in the wake of the venereal peril. And still fresh cases of gonorrheal infection daily knock at our office doors for help. Then viewing the problem from an economic standpoint the time lost by the wage-earner infected with gonorrhea, not only as measured in dollars lost to his needy family, but also as applies to the material loss of his services to his employer and the disruption such illness causes to his organization, mounts yearly into stupendous figures. Surely the treatment of gonorrhea should vitally interest all of the members of our calling. Let us awaken to the situation existing today. The age of jazz is in no wise conductive to better morals. We must, therefore, study seriously how more effectively to combat this disease in its

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early stages, in both sexes, so that a minimum number of complications will be observed. When complications intervene we must be capable of recognizing them promptly so that efficient treatment can be summarily instituted.

To diagnose accurately gonorrhea we must employ the microscope. I would scarce have the courage to mention this point before such an audience were it not for the fact that ever so often where the clinical evidence of a discharge was accepted by certain physicians as sufficient proof of gonorrhea, valuable time was lost in arresting the ravages of an urethral chancre. A sterile urethral smear should make one suspicious therefore of urethral syphilis and careful palpation of the urethra, possibly an endoscopic study, observing for secondary manifestations, and a blood Wassermann should be employed in aiding to clear up the diagnosis. So much for the male.

In women the term leucorrhea has been handed down to us from time immemorial with all the dignity accompanying a clinical entity. Yet today most of us should realize that so-called leucorrhea is but a symptom, not a disease. The time-honored vaginal douche therefore is about as valuable in the treatment of gonnorrhea of women as is the methylene blue pill in men.

The first principal we must accept, if we are to treat our cases of gonorrhea along the lines of modern urologic teaching, is that the infection perpetuates itself by gaining lodgment in certain gland structures. Our theraphy is therefore directed at eradicating these foci of infection. In the male the paraurethral glands, the periurethral glands, Cowper's glands, the prostate and the seminal vesicles deserve special consideration. In the female the vulvo-vaginal or Bartholin glands, Skene's glands and the cervical glands demand particular attention.

Any number of concurrent factors may be met with in the treatment of gonorrhea which, when ignored or allowed to go unrecognized, may add materially to the chronicity of a given case. I refer particularly to phimosis, balanitis, venereal warts, urethral caruncle, pin-point urethral meatus and stricture. At one time the teaching was to treat the infection first and then attend to these other coexistent factors later. I have never understood the rationale of such reasoning. We attend to these matters first. It saves time and much worry. Where a foreskin is so tight that the urethral meatus cannot be easily exposed, circumcision is done at once. Only in this way can balanitis be promptly arrested. Venereal warts or urethral caruncles are promptly destroyed with the high frequency spark. Meatotomy is done at once where the meatus is found stenosed. Strictures must be dilated in order to further urethral drainage; naturally I refer here to strictures of the anterior urethra mainly as it is constrictions of this type that hinder any form of therapy directed at controlling acute infections of this area.

TREATMENT OF THE MALE.

Urethritis. More misleading statements are made by the manufacturers of drugs that are supposed to be specifics for gonorrhea than probably can be observed of any other group of remedies. Hardly a week goes by but we receive through the mails announcements that at last something wonderful has been discovered that will promptly cure infections of the diplococcus of Neisser. Few of us today are fooled by rash claims. All of us hope to see the day when we will have a true specific here. So far, however, it has not come to hand. Within twelve hours after exposure, the organisms begin their siege by burrowing into the many follicles that stud the urethral lumen throughout its length and soon are safely hidden away beneath a barrier difficult for any agent to penetrate. In rare instances we observe cases who report

within the first twelve or twenty-four hours after noting a discharge and here *abortive treatment* with a single injection of 2 per cent silver nitrate solution following a 1 per cent cocain local anesthetization will frequently effect a cure. But these cases make up a small percentage of all gonorrheas seen, probably not more than 1 per cent. The druggist sees most of these patients first. Later the physician. The antiseptic dyes, one of the few good things accruing from the World War, unquestionable are far superior to the older protein silver preparations. The penetrating quality of the dyes, whereas not fullfilling perfectly our requisites of what an ideal gonococcicide should be, commends itself to our favorable consideration. We should employ them intensively at the present time. One-quarter per cent pyridium solution, mercurochrome in 0.5 per cent strength and neutral acriflavine in 1:2000 dilutions should be used alternately. Bacteria of any strain ultimately acquire a certain degree of tolerance against any one given drug. Therefore by using one dye solution on one day and switching to another the next maintains better the therapeutic efficiency of each drug. It is imperative that fresh solutions be made up daily. Old solutions not only lose in potency by being kept indefinitely on the shelf, but they are also found to be far more irritating than freshly prepared solutions.

The quest for a dependable internal urinary antiseptic has proceeded uninterruptedly through the years. Up until the introduction of pyridium I personally could not enthuse over any of them. During the past twelve months my experiences with administering pyridium by mouth to cases of gonorrhea has forced me to modify my opinion. This collodial condensation product of phenyl-azo-diamino-pyridine-hydrochloride, known as pyridium, is a most valuable internal urinary antiseptic. Its influence upon bacteria and pus is practically immediate. The more acute the infection the more prompt will be the action of the pyridium. Two tablets, of 0.1 gm. each, are given three times a day. The dye stains the urine a brownish-red; the secretion from the prostate and seminal vesicles also is colored following the taking of pyridium. No internal urinary antiseptic so far given us will, with the same promptness, clear the urine of pus and bacteria. In gonorrheal infections it serves as an import aid in promtly getting the case under control. It should be needless to add that local treatment is never to be subjugated to internal medication, but is to be employed along with the local remedies mentioned in the preceding paragraph. Furthermore, where the chronicity of a urinary lesion is due to some mechanical obstructive factor, something more than internal medication is obviously demanded.

Self-treatment is always disappointing, even in the hands of the most intelligent patient. Either he gives himself an injection improperly, is in too great a haste or because of the pain accompanying the injection he does not use it at all, but misleads his physician into believing that he is carrying out instructions to the letter. The doctor must personally institute the therapy in Neisserian urethritis. If he is too busy to do this, he should turn the case over to a physician who will.

Every dram or two instilled into the urethra must be held in for at least ten minutes; in some cases fifteen minutes soak is better. A meatus clamp is handy here. For the first few days the patient reports to the office morning and afternoon. Thereafter once daily usually will suffice. At each visit patient reports with full bladder and voids in two glasses. This test, crude though it may be, gives sufficient clinical information for the practitioner to know whether or no the infective process has passed behind the compressor urethrae and invaded the posterior urethra. I never give a local treatment for active gonorrhea unless the patient can first flush out the urethra with urine. I believe this procedure

minimizes the number of complications which are apt to ensue. Smears under the microscope are checked with the Gram stain twice weekly.

A suspensory bandage is prescribed at the first visit for obvious reasons. A complete list of instructions of "dos" and "donts" are also given patient at this time. If the doctor will place all of his cards on the table at the first interview there can be no chance of misunderstanding.

Posterior Urethritis. Most cases of anterior urethritis develop a posterior involvement within a week after initial onset of symptoms. The prompt recognition of this complication means much if results are desired. Observing a cloudy second glass of urine and a complaint upon the part of the patient of frequency and urgency should immediately place one on guard. Irrigations are more harmful here than any other procedure you might use. More traumatism, with subsequent stricture formation, is produced by ill-advised, forceful irrigations than by any other means I know of. Eighteen years of experience in urological work has taught me the futility of the irrigation method of treating gonococcal urethritis. Instillations of a dram of a 2 per cent solution of silver nitrate administered by means of a Guyon woven silk, olive tipped catheter specially designed for the purpose, serves as a specific where the condition is gotten sufficiently early. But in any case 2 per cent silver instillations are superior to any other medication in the posterior urethra. These are given twice or thrice a week, depending upon the severity of the case and the reaction following its use. By having the patient supine on the treatment table, with the bladder empty, we can in most instances gently install a solution of mercurochrome, pryridium or neutral acriflavine into the posterior urethra by means of a two dram urethral syringe. In the process of injection the patient is asked to relax as well as to go through the act of voiding. This relaxes the sphincters and the medicament passes easily into the posterior urethra and bladder.

Paraurethritis. Laterally to the urethral meatus and on the glans one not infrequently will observe a minute duct opening. The orifice of such a gland infected with gonococci will be found red and puffed and upon pressure will discharge a small drop of pus rich in organisms. Unless the clinician is on the lookout for these foci they might easily be missed. They serve as one factor in the perpetuation of so-called intractable urethrites. These glands are easily destroyed by one application of high frequency spark.

Periurethritis. An occluded periurethral gland may go on to abscess formation and, if left alone, may rupture either on the skin or into the urethra. Incising these abscesses should not be done hastily. The dread of a resultant permanent urethral fistula from such surgical intervention must ever be kept in mind. If the abscess points urethrally, it can best be opened through an endoscope with high frequency spark. Should the abscess point superficially, needle aspiratory puncture plus the injection of a few minims of a 1 per cent mercurochrome solution will usually bring about prompt resolution of the pus focus. The expectant treatment is with hot fomentations. If periurethal infiltrations assume tiny, shot-like feeling masses, they are treated by massaging them over a straight sound twice weely until they disappear.

Cowperitis. There are two compound tubular glands situated between the two layers of the triangular ligament, anteriorly to the prostate, known as the bulbourehral or Cowper's glands, which have hitherto received little consideration by the clinician. When involved they can be easily palpated by placing the index finger within the rectum and pressing the thumb against the perineum. Many cases of intractable gonorrhea unquestionably are due to foci hidden away in Cowper's glands.

Unless they abscess little attention is paid them by the average doctor. Every male with chronic gonorrhea should be examined for Cowperitis. Massage to the perineum and the application of heat often produces pleasing results. Diathermy to the perinuem has materially helped me clear up these foci which are so inaccessible. Absceses obviously must be drained surgically.

Prostatitis. This complication of chronic infection by far makes up the bulk of the urologist's office work. We know that the great majority of urethral infections go posterior sooner or later, and authorities agree that posterior urethritis and prostatitis always go hand in hand. Only too few men take sufficient pains with their cases to make rectal examinations and to study the expressed secretion microscopically. The usual excursion of the index finger in carrying out massage is a swing from the lateral extremity of the gland towards the mid-line, downwards and outwards. The prostate, as you will recall, lies on the floor of the rectum just within the anal sphincter. Any physician, with a little practice, can acquire the proper stroke. Massage is superior to all other forms of therapy in prostatitis and is carried on, every day, until the secretion is free of pus and bacteria. This may require two months of treatment; it may take a year.

Seminal Vesiculitis. These structures are invaded with the gonococcus frequently and again massage is our mainstay. Because of the difference in glandular structure, the vesicles are emptied differently from the prostate. Here the finger adopts a downward and zigzag movement in order more effectfully to empty the sacs. If one wants to collect the prastatic and vesicular secretions separately the prostate is first massaged on a full bladder; the patient then empties his bladder and the vesicles are massaged and the secretion collected in a separate receptacle. Besides massage diathermy is used in the obstinate types of both vesiculitis and prostatitis. No perfect electrode has yet been devised for this work but the v-shaped instrument that is placed via the rectum against the prostate with the other blade resting on the perineum is superior to others.

Stricture. With the more universal adoption of less cauterizing antiseptics and with a truer appreciation of the value of gentleness in all urethral manipulations, strictures are becoming rarer every year. Still they are met with and one never knows when he might have a patient with gonorrhea who harbors a congenital stricture. Silk bougies are far less traumatizing than steel sounds, and are becoming more popular all the time. The Kolmann dilator has a definite place in the treatment of strictures, particularly those at the bulb. Dilatation here serves a dual purpose in that it relaxes the annular scar within the urethra and at the same time massages the prostate from within.

Epididymitis. No complication of Neisserian infection is more painful than epididymitis. Nothing yet discovered relieves this pain as promptly as diathermy. This modality of physiotherapy does not only relieve the pain, but if applied sufficiently early, will reduce the swelling more rapidly than can be accomplished by other agents. The intramuscular injections of foreign proteins or the intravenuous injection of mercurochrome serves as an added measure in relieving the more refractive cases. Epididymotomy is rarely practiced now. Diathermy has materially reduced the number of epididymi that go on the abscess formation. Naturally when abscesses develop incision and drainange becomes imperative.

Arthritis. This complication too often brings in its wake much suffering. Here again diathermy is the best agent at our command for promptly relieving pain and swelling. Foreign proteins intramuscularly or mercurochrome intravenously aid in many cases to hasten resolution. As-

piratory puncture to relieve the joint of fluid is being used less and less. Open operations on the joints are never practiced in my clinic. We depend upon rest and diathermy chiefly to promptly arrest the process. After all is said and done results will follow only if the primary focus of infection is recognized and efficiently treated. As the prostate and seminal vesicles are by far the chief offenders here, they must be treated assiduously.

TREATMENT OF THE FEMALE.

As the urologist deals alone with the lower portion of the urogenital tract in women, infection of the uterus, tubes and ovaries will not be considered here. They truly belong within the sphere of the gynecologist.

Any number of physicians are of the belief that gonorrhea in women is incurable. This, of course, is fortunately not true. If we seek out the foci infected with the gonococcus and apply rational therapeutic measures, provided we can enlist the whole-hearted co-operation of the patient, results are most satisfactory.

Bartholinitis. The vulvo-vaginal or Bartholin glands become infected in cases of gonorrhea in about 40 per cent of patients. Occasionally abscesses occur in these glands in neglected cases. Excising these glands I consider poor surgery. Such procedure exposes lymph channels which most often disseminates the infection rather than arresting it. The application of diathermy by means of the needle elecrtode inserted into the duct and gland sterilizes both in a few seconds. The after care consists of topical applications of 10 per cent mercurochrome.

Skenitis. Infections persist longest in the anterior third of the female urethra and this is attributable largely to diseased Skene's glands. Again the diathermy needle, employed through an urethral speculum or better through an electrically illuminated skeneoscope, is the most valuable agent we have to sterilize these foci. Usually one gland is treated at the time. Within three days or a week the other is destroyed. This is done so as to avoid an undue amount of reactionary edema. The follow-up care is with 5 per cent mercurochrome. Dilatations to urethra once weekly, until we reach instruments of 30 or 32 F., are necessary following diathermy and mercurochrome therapy.

Endocervicitis. So much has been written within the past few years on diathermy and its value in endocervicitis that we need say little here. It is the one and only sure way to destroy gonococcal infections of the cervix and at the same time in no way injure tissue. Sufficiently intense heat will kill gonococci; that we know. With electrothermic high frequency we can obtain this needed degree of heat, within the tissues, for periods sufficiently long to destroy the bacteria.

CONCLUSIONS.

1. Gonorrhea perpetuates itself over indefinite periods of time by gaining lodgement in certain uro-genital gland structures. Only by searching carefully for these foci and then administering the proper treatment, over a sufficient period of time, can a cure of the infection be effected.

2. The newer dye antiseptics, pyridium, mercurochrome and neutral acriflavine in particular, seem to offer us mcch as agents which penetrate the tissued invaded by the gonococcus. Silver nitrate is by far the most reliable antiseptic we have for treating these infections. Instillations are far less traumatising than irrigations and are to be preferred as the most satisfactory means of applying these drugs.

3. Intramuscular injections of foreign protein substances and intravenous injections of small doses of mercurochrome serve as valuable adjuncts in the treatment of refractive cases. Small doses of neoarcphenamine, frequently repeated, sometimes give results when the above mentioned agents fail. Vaccines have proven a

complete failure in the treatment of gonorrhhea and are not to be recommended.

4. Diathermy offers us an extremely wide field of usefulness in the management of these infections. In infected gland structures of the urethra of both sexes it is most satisfactory. In the prostatitis it has a fixed place. For acute gonococcal epididymitis it is the nearest thing to a specific that we have. In sterilizing Bartholin, Skene or cervical glands in women, it has no equal in the therapeutic field. Diathermy to painful, swollen gonorrheal joints promptly relieves symptoms.

5. Therapy directed at relieving any disease, no matter how efficiently executed, may fail due to the lack of proper co-operation on the part of the patient. The patient should be made to realize the seriousness of his or her infection and told of the possibility of resultant sterility or chronic invalidism where treatment is neglected. Sexual intercourse, alcoholic drinks and exercise are interdicted. Where the patient is married (and fully 60 per cent of our patients are married) the opposite party should be interviewed, when necessary examined, and if found infected, treated. Matters such as these, tactfully handled, should cause no disruption in marital felicity and are essential if a cure is to be expected.

6. Gonorrhea is curable and the means for dispatching these infections is accessible to all. The urologist has no secrets to hide from the general practitioner. No magic formula exists that will do the impossible. As in most phases of medicine, common sense plays a major part. Let us show more interest in the management of venereally infected patients.

MEDICAL THERAPY OF GALL BLADDER DISEASE.

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Diseases of the gall tract and liver are very common, and in their early stages are frequently overlooked. Alvarez states that from 5 per cent to 10 per cent of all women coming to autopsy have gall stones. Menker records that in six hundred and twelve consecutive necropsies in persons over twenty-one years of age, 66 per cent showed some pathology, though but 5 per cent complained of symptoms. Fisher and Snell found 40 per cent gall bladder pathology in two hundred abdominal operations.

The liver, gall bladder, bile tracts, stomach duodenum and intestines are all derived from the primary entoderm. The liver developes as an anlaga from the duodenum and the gall bladder as a diverticulum from it. The gall bladder is guarded by a spiral duct and the common duct by the sphincter of Oddi. The gall bladder has a capacity of about 50 cc. and its walls are composed of fibrœlastic tissue and smooth muscle, which is arranged in three layers, longitudinally, circularly and obliquely. Freese states that the pressure exerted in emptying the gall bladder is 220 mm. of water, or about the same as the secretion pressure of the liver. The liver secretes bile continuously which is held back by the sphincter of Oddi, flowing back into the gall bladder. The gall bladder concentrates the bile, and on stimulation of the sphincter of Oddi it flows out to take its part in digestion.

Most diseases of the liver and gall bladder are due to infection, some are due to disturbed cholesterol metabolism, and some to malignancy. Infection reaches the biliary system through the following means: through the hepatic artery from foci of infection as the teeth, tonsils, sinuses, etc.; through the portal system from the intestinal tract; through direct extension from the duodenum, which does not frequently

occur; by contiguity, namely from other infected organs, transperitoneally, which is probably rare.

Acute diseases may be limited to the gall bladder, but the chronic stages are rarely so, and are shared to a greater or less degree with diseases in the liver, pancreas, stomach, duodenum, intestines and appendix. Infection in the gall bladder may start suddenly with pneumonia, typhoid fever, acute sore throat, etc., or insidiously with the gradual feeding of the infected blood from some focus to the liver and gall bladder wall, which removes the bacteria to protect the body, finally itself falling invalid to it. Inflammation may start in any part of the gall tract and may clear up leaving focalization behind which most commonly is in the gall bladder due to the fact that there is more or less stasis here all the time. The infected gall blalder may clear up only to be reinfected. Lyons gives three vicious cycles which make it difficult for the gall tract to clear itself:

1. Mural infection in the wall of the gall bladder which then becomes a definite focus and sends the infection through the lymphatics to the liver and pancreas, and from both of these it is sent back to the gall bladder. This type, he thinks, will not get results from drainage, but 70 per cent to 85 per cent will get results from surgery, if performed by capable men.

2. The dissemination of the infected and poisoned bile through the intestinal wall, which may develop a mural infection into the mesenteric vessels and from there to the portal system into the liver, part going through the interior vena cava into the heart, and from there to the entire body.

3. Similar to the second, and represents the infected and poisoned bile being taken up by the lacteals into the cysterna chyla, into the left inominate or subclavian vein to the heart, and then pumped to the body, finally getting to the liver and adding another burden to the already injured organ.

Infection of the biliary system may have its beginning in childhood or early youth and may be classed into a period of infection, a latent period and a stage of complications.

The stage of inception may be instituted by an acute fulminating disease with high temperature, severe pain, nausea, vomiting, jaundice and tender liver, or may come on gradually and make it impossible to get a history of a definite beginning.

During the latent period the patient suffers little discomfort with occasional flare-ups, mild jaundice, indigestion, a dull pain under the right ribs, which is aggravated on exertion or stretching and may extend to the back or up under the right shoulder blade. There may be mild nausea and much gas distress with or without heart burn. There is apt to be constipation and dopey headaches, bad breath or bad taste in the mouth or occasional vomiting of sour green bile, or regurgutation. All may be more or less indefinite and transient.

With the stage of complications, one observes adhesions, stones, obstructions, pus, perforations, peritonitis and pancreatic involvement.

To secure a diagnosis, the history is very important and must be thorough, going into the early symptoms for signs of gastro-intestinal trouble. In examination, the pressing of the fingers into the relaxed abdomen under the right costal margin and having the patient breathe deeply may elicit pain when other signs fail. A fractional gastric study should be made and the biliary system drained and the bile examined microscopically and bacteriologically. A great deal may be learned from this study, the amount of information being dependent on the ability and experience of the physician. The finding of pus and bile-stained epithelium can be diagnosed easily. Due to the brevity of this paper I will not go into the discussion as to whether the gall bladder can be drained or as to why the bile flows. There is a great difference of opinion

among investigators on this subject, but these facts remain dominant, that the bile flows and flows easily to the stimulation of magnesium sulphate, peptones, olive oil, etc.; that in most cases three types of bile are obtained, the A, B, and C bile, and where not obtained pathology may be suspected; that with the flow of bile the gall bladder must empty to a greater or less degree depending upon the strength of the stimulus; and that nearly all men agree that more or less benefit is obtained symptomatically by the drainage. Roentgen-ray examination is important and is more accurate since the tetrabromiodophenolphthalein test has been used as an aid in diagnosis. In certain cases the use of the liver function test and blood chemistry may be of value.

In the treatment of all types and conditions of gall bladder disease, it is well to observe certain factors. All foci of infection which may be feeding the lesion must be cleared or removed. It is impossible to get results surgically or medically unless the source is eradicated. This applies to the teeth, tonsils, sinuses and upper respiratory tract, especially, but also to chronic bronchitis, diseases of the intestines, prostatitis and uterine diseases. The body must be placed in the best possible condition to overcome its invasion. The infection in the bile passages and gall bladder must be eliminated. Regular and thorough drainage of the biliary tract must be established and maintained. Complications must be averted.

Acute cases of gall bladder disease are medical, and surgery when necessary should be done in the interim. The following treatment depending upon the severity of the attack should be instituted. Auto-lavage of the stomach by letting the patient drink warm water and throw it up until it returns clear. This cleans and soothes the inflamed mucus membrane. Heat is applied to the right upper quadrant by means of hot water bottles electric pads or electric lights. Counterirritation may give relief in the form of mustard packs or plasters. In severe cases where a bad infection or an empyema is suspected the side should be packed in ice and kept so until the symptoms clear. It is in this type of case that surgery gets its highest mortality as well as many of its bad results and should not be used except as a last resort. It is true that all cases will not recover with this treatment, but the mortality will be much less than if treated surgically. If nausea persists after auto-lavage ten to fifteen drops of chloroform in a small amount of ice water can be given. Morphin will have to be used in some cases. No food should be taken for twelve to eighteen hours until the nausea and distress is relieved, and food should be started slowly with weak tea, gruels, skimmed milk or buttermilk, and added to gradually. Hexamethylenamin should be given in all infections in doses of fifteen grains three times daily for three days and at intervals until well. The urine must be watched for albumin as the drug used over long periods will injure the kidneys. This drug is excreted by the liver and gall bladder wall and is antiseptic. Salts should be given one half hour before meals as they neutralize the acid and reverse the osmotic pressure, drawing the fluid from the inflamed mucus membrane, reducing the engorgement. They also stimulate the gall bladder and liver. In cases of stone, the salts may cause increased pain and should not be used if this occurs. Salts have been recognized for centuries and form the method of treatment that thousands of patients receive at the springs and sanatoriums. Much can be done by the judicious use of salts, a good mixture being equal parts of magnesium sulphate, sodium sulphate, and sodium bicarbonate; a teaspoonful in warm water.

The subacute and early chronic cases should be treated during exacerbation in a similar way, but in the interim they should receive care as well. This should consist of:

Diet: milk, cereals and vegetables form a good standard. Where the liver is damaged a low nitrogenous diet is important so as not to throw more strain on it. In cases that tolerate olive oil, it should be given night and morning. Nearly every physician has had patients to whom surgery was advised, come in and tell him that they have been cured by the use of olive oil. In cases where stones exist stimulation of the flow may bring on an attack of gall stone colic, and many cases will have to go on very careful diet, avoiding rich, greasy foods, fried foods, tripe, sweet breads, crab meat, lobster, pork and sausage. Regular meals are important as this tends to empty the tract and prevent stasis.

Rest: Strenuous work or play aggravates the condition and may bring on an attack. The patient should lead an easy even life and avoid worry.

Drugs: Hexamethylenamine, saline cathartics and olive oil as previously stated constitute the fundamental armamentarium.

Drainage by means of duodenal lavage with some stimulant as magnesium sulphate, which is the strongest and is used in 33 percent solution or with olive oil, sodium sulphate, peptones, dilute hydrochloric acid, etc., followed by transduodenal flushing with Ringer's solution, as recommended by Lyons, is good. This may be done daily to weekly to begin with and the periods lengthened as improvement occurs. The patient may carry on the drainages occasionally after discharge from active treatment. In certain cases the drainages may be continuous and Lyons states that these cases should be hospitalized, the duration of the drainage being from ten days to two weeks.

Vaccines: Autogenous vaccines are recommended highly by some men where a definite infection can be demonstrated.

In the last group of cases in which complications have developed, surgery is indicated. Cases in which stones are present are definitely surgical as it is impossible to remove them medically unless they are very small and records show that there is a higher cancer incidence in gall bladders that contain stones. Many of these cases will have to be treated medically after removal of the lesion as there is always more or less perihepatitis, choledochitis and even cholangitis present which must be cleared up if good results are to be constant.

Medical treatment is indicated in the following conditions: Early gall bladder and duct catarrh; simple catarrhal jaundice; in hepatic intestinal toxemias with dizziness, headaches, nervous indigestion, belching, biliousness, anorexia and malaise; military migraine; associated with other treatment in obstinate neuritis and rheumatism; acute cholecystitis, choledochitis and cholangitis; old people or patients in whom heart or kidneys contraindicate surgery; patients who refuse operation; in relapsing cholangitis after cholecystectomy, it may save a second operation; in persistent fistula following operation; in obstructive jaundice, together with morphin, may let the stone bob back or even pass and better the operative risk by clearing the jaundice; restless cholelithiasis with inflammation of the mucus membrane to quiet down and improve the operative risk; post-operative hiccough and adynamic ileus; early cirrhosis of the liver; typhoid carriers.

SUMMARY.

1. Medical treatment is indicated in all infections of the biliary tract. Complications are not infections, but the results of the infection, and are surgical.

2. Diagnosis must be made as early as possible.

3. Medical treatment must not be carried on past the stage where surgery will aid.

4. Medical treatment is an aid to surgery pre-operatively and post-operatively.

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CASE REPORTS AND CLINICAL SUGGESTIONS

PAPILLARY CYSTADENOMA OF THE BREAST.

REPORT OF A CASE.

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Papillary cystadenoma of the breast is one of the rare tumors, a large number of which undergo malignant degeneration. There is so little to be found in the literature on the subject that the report of a case may be of interest.

Case Report: A negro woman, aged 48 years, married, was admitted to the Bellamy Hospital, Nov. 13, 1927. One sister had died at the age of 44 years of cancer of the womb. The patient is the mother of five children, all of whom were breast fed.

She first noticed a lump the size of a marble in the right breast during November, 1926. This had gradually grown to the size of an orange at the time of the operation. It was never painful, nor was there any discharge from the nipple. She was well developed, fairly well nourished, though she claimed to have lost 50 pounds in the past year. There was a cardiac systolic murmur heard best over the apex. There was a mass in the right breast about the size of an orange located in the upper outer quadrant, freely movable, not attached to the skin, smooth outline on palpation, neither hard nor fluctuating, and with no discharge from the nipple. The axillary

glands were not palpable. The urine contained albumin. The Wassermann reaction was positive.

A radical amputation of the right breast was done Nov. 14, 1927. The axillary space was not thoroughly dissected out because of the poor condition of the patient during operation. She was discharged Nov. 30, to return for dressings and antisyphilitic treatment. She was last seen Dec. 21, 1927. The wound was healed at that time, and the patient apparently fully recovered from the operation.

Gross examination of the tumor showed a multilocular cyst filled with bloody fluid. It contained a large amount of papillomatous growth with multiple attachments to the cyst wall. At the base of the cyst, the growth had infiltrated the surrounding tissue.

Historical: Strasser[1] in his article gives a very complete history. He considers some of the cases which Astley described in 1829 as hydatid diseases of the breast, were in fact papillary cystadenomas. Brodin described the condition in 1840 but confused it with involution cysts, as did Birkett. Rougeau, in 1874, considered it a variety of retention cysts. Butlin thought epithelial irritation caused the intracystic growth.

Gross, writing in 1880, included them in the class of adenomas. Bowlby was the first to use the term duct papilloma, in 1888, but Strasser thinks he confused benign and malignant forms of similar conditions. Virchow, Sasse, Schimmelbush, and Trietze called it either cystadenoma papillari, intracanalicular cystadenoma, or papillary cystoma, but considered the condition only a developmental phase of involution cysts and malignant degenerations. Ill[2] reported cases in 1905. Warren[3] in 1905 did much to settle the classification, and since then the condition has been recognized as a distinct clinical entity. Greenough and Simmons[4] in 1907, Bloodgood[5] in 1908, Speese[6] in 1908, Erdman[7] in 1912, Upcott[8] in 1913 have written on the subject and reported cases.

Etiology: Neither trauma, mastitis, lactation, marriage, nor celibacy seem to have any definite bearing. However, most of Erdman's patients were married women without children. These tumors appear most often after the menopause, and at the average age of 50 years. Yet they may occur in the very young and in the old.

Histology: These cysts of the breast with intracystic papillomatous growths are usually single, but may be multiple, and even bilateral. They may be unilocular or multilocular. The papillomatous growth is attached to some segment of the cyst wall and may consist of only one papilla, or it may fill the cyst. There are often many points of fusion with the wall. The epithelium of the cyst is the same type as that of the lactiferous ducts, and is an outgrowth from some duct. The cysts are filled with a bloody serum, or, in an occasional case, a chocolate colored fluid. This serum usually escapes from the nipple, or may be expressed by manipulation. Should the duct be occluded, this characteristic feature is absent. The cyst may adhere to the skin in rare cases, and even open externally. These tumors tend to undergo malignant degeneration in about 50 per cent of the cases. The structure of the malignant growth is the adenocarcinomatous type. It is one of the least malignant and invades the lymph system only after a long time.

Clinical Diagnosis: This almost depends upon the presence of this bloody discharge from the nipple. Cancers, however, in some few cases show such a discharge, as do involution cysts also. Involution cysts are more diffuse, nodular, and more often are on the periphery of the glands. Papillary cystadenomas are usually situated near the nipple, ordinarily have no skin attachments, and are freely movable. They are not painful. These cysts may enlarge during pregnancy and lactation and secrete milk. Then they can be mistaken for malignancies or galactoceles. The presence or absence of palpable axillary glands should not influence the diagnosis, as they may be present in benign conditions and absent in cancers.

Treatment: The injection method of treatment has been discarded as it some times stimulates their growth. The recognized treatment is excision of the tumor or of the breast, and in case of infiltration through the cyst wall, the radical operation. Since exact diagnosis cannot be made without incision, many surgeons prefer to make an incision into the tumor at the time of operation, then to proceed according to their findings, either to simple excision of the breast, or radical amputation.

Upcott[8] says if on cutting into it granular material is found instead of the usual bloody fluid; if the cyst is occupied by a nodular growth instead of a soft friable papilloma; or if there is much infiltration of the wall of the cyst at the base of the papilloma; or if there are many small dilatations filled with epithelial growth and blood, we can diagnose cancer and proceed accordingly. If there are none of these signs, it is well to remove the whole breast, for even local resection will cause the loss of the nipple.

Comment: Papillary cystadenomas, though rare, are important because so large a proportion become malignant. They grow so slowly that early treatment offers an excellent chance of cure. This paper adds another case to the number reported.

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EXTRA-GENITAL CHANCRE OF THE UMBILICUS.

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NEW ORLEANS

This case is one of extra-genital chancre, which I thought might be of interest because of the location of the lesion. In reviewing the literature I can find but fourteen similar cases reported, those by Cullen in Diseases of the Umbilicus.

This is the case of a negro boy who was treated at Touro last April. At that time a diagnosis of granuloma was made because of the character of the lesions at the junction of the penis and the abdominal wall, and bubo in the left groin. Scrapings were examined for Donovan bodies with negative findings. The Wassermann was negative. He was given tartar emetic from the fifteenth of April until the middle of July, without any benefit. No record was made of the scrapings from lesions sent to the laboratory for examination for treponema. On the twenty-third of August he was greatly improved.

When I saw him, November 10, he had a partially healed lesion at the corona and a completely healed lesion at the base of the shaft of the penis. I was checking up cases of granuloma to discuss at the Southern Medical Association meeting. At that time I did not think that the man had a granuloma. His lesions had healed except at the corona. He said that he had derived more relief from the six doses of salvarsan during August and September than from any previous medication. He came in on November 22 and a Wassermann was done by one of the members of the Staff and found negative. I saw him again November 26, and he complained to me of having a sore in the umbilicus. Examination showed the lesion on the corona almost healed. There was edema and induration around the umbilicus with a granulating ulcer in the umbilical fossa. Scrapings from the umbilical sore showed treponema pallida, the partially healed sore

on the corona was absolutely negative for Donovan bodies and treponema. He was to get arsphenamine and I have no record since second course of treatment was started.

Cullen reported first a case of Bloom's (1876), unquestionably syphilis; he also reported twelve cases in 1912 and three cases in 1914. Fischer, of Sydney, Australia, in a personal communication to Cullen cited one case in which a man had a chancre of the penis and a chancre of the umbilicus. Cullen cites Fournier, who, working on 10,000 cases of chancre, found sixteen umbilical lesions.

A point of interest in this case is that the patient had arsphenamine several weeks before the lesion appeared at the umbilicus, and the lesion on the penis had not completely healed with arsphenamine.

Note: Since making the above report patient has been given more treatment with arsphenamine and the lesions were completely healed after the second dose, ten days after treatment was resumed.

NATIONAL LEPER HOME AT CARVILLE.—Surgeon General H. S. Cumming has recently submitted to Congress an interesting report relating to the National Leper Home, located at Carville, La. During the past year 56 lepers were admitted to this hospital; 12 were readmitted and 2 patients were discharged on parole, as their leprosy was arrested and considered no longer a menace to public health. Seventeen deaths occurred during the year at this hospital.

The nativity of the patients in the National Leper Home is of interest. They come from 20 States and 3 of the insular possessions of the United States. Persons are also patients in the hospital from 24 foreign countries. Louisiana, Florida and Texas lead the States furnishing patients to the National Leper Home. At present 278 patients are under treatment in the Home. Practically all of these patients are receiving chaulmoogra oil, which is the drug that seems to be most beneficial in the treatment of leprosy. It is administered in some cases by mouth in doses ranging from 3 drops to 300 drops daily. Some of the patients receive intramuscular injections of this oil.

Leprosy does not respect race, creed or social status. A leprosarium for patients from a large country cares for a cosmopolitan group seldom encountered in a general hospital. The manifold manifestations of leprosy, with the diversity of symptoms and the variety of psychologic responses coupled with the conscious or unconscious pessimisms of the average human being suffering from a chronic progressive disease, confront the medical officers of this institution with the difficult problem of maintaining a proper morale. Recognizing the great importance of occupation to prevent morbid introspection, paid employment is offered patients physically and mentally fit to work at light tasks, to the profit of both patients and hospital. During the current year, on an average of 81 lepers have been thus employed at the hospital, the assignments ranging in variety from the more simple duties of housekeeping and bedside care of fellow-patients to the more exacting work as assistants in the general laboratory, physiotherapy department, dental laboratory and operating rooms. Daily routine occupation is there supplied to one-third of the total population of the hospital and to almost all of those physically fit for such an undertaking.—Bull. U. S. Pub. Health Service, April 23, 1928.

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HOSPITAL SERVICE IN THE UNITED STATES.

A recent number of the official organ of the American Medical Association has just published a special hospital number detailing much information concerning hospitals in the United States. The facts are compiled from a census of hospitals taken in the last few weeks and are not obtainable elsewhere. Perusing the report it is noted that in Louisiana there are forty-two general hospital with a capacity of 5,155 beds, having an average of 3,430 patients. The percentage of occupancy is 66.5 as compared with 66 per cent in general hospitals in the United States. The nervous and mental hospitals in the state number 5 with a capacity of 4,249 and having 3,860 patients. In addition to these general hospitals there are a total of 67 registered hospitals with 11,208 beds and 8,255 patients. In the state of Mississippi there are 58 general hospitals with a bed capacity of 3,025 and an average number of patients in these beds 1,584. In Mississippi the nervous and mental hospitals are 3 in number with a capacity of 3,237 with virtually all places filled. For the care of the tuberculous, Louisiana has 5 hospitals, with 632 beds with an average of only 317 patients. Mississippi has 2 such hospitals with 524 beds, 325 of which are occupied on the average. Mississippi has a total number of 70 registered hospitals, a capacity of 7,062 and an average census of 5,175.

This report of hospital service will prove of great value for ready reference in order to determine the size and number of the hospitals throughout any state, the type of service rendered by a particular institution, whether the hospitals are approved for internship training, whether they have a nurses training school, and such general information. It gives practically all the data and facts about hospitals which one would be called upon to use ordinarily.

PERCUSSION OF THE HEART BORDERS.

There has always been considerable doubt in the minds of clinicians and students as to the accuracy and value of the determination of the size of the heart by percussion. Admitting that percussion is the most difficult of the methods of physical diagnosis to master, and that confidence and accuracy are attained only after considerable experience, the question still remains as to the actual comparison between the area of cardiac dullness and the size of the heart as determined by our most accurate clinical method, the Roentgen ray. Kurtz

and White* have made a study of one hundred patients of all ages and both sexes, comparing the results obtained by percussion with those obtained by the use of the roentgenogram taken at a distance of 7 feet. Three different observers made the percussion observations, a fourth individual determining the roentgen ray findings. The observations were apparently well conducted and they are certainly interesting. For example, the average "error" in the percussion of the left border of dullness at the apex varied from 0.2 to 1.5 cm., averaging about 0.6 cm. It was noted also that the area of supracardiac dullness in the second space, measured from right to left, was narrower than the width of the great vessels as shown in the roentgenograms in 88 of 97 cases. This was considered the most difficult measurement to obtain by percussion, and is usually inaccurate unless the widening is rather marked.

The authors conclude that percussion is of value and is reasonably accurate. The border of dullness was taken as being most accurate not at the point of the first change in note but where the dullness is first definite. Certainly considerable emphasis must be placed upon the technic of percussion. The authors think that cardiac enlargement can be determined with a fair degree of accuracy for all practical clinical purposes by considering whether or not the left border of dullness lies outside the midclavicular line, in which case the heart may be considered enlarged. This study confirmed this view and 78 per cent of the cases showing signs of pathology extended past the midclavicular line.

Considering the applicability of percussion to all cases and the reasons prohibiting the routine use of the Roentgen ray the study strengthens our confidence in the accuracy of this readily available method of determining heart size. Certainly it would be of decided advantage to check our percussion results occasionally with the more accurate method, so endeavoring in this and every other manner to perfect our percussion technic which is to a large extent to determine the reliability of the findings.

*Kurtz, Chester M., and White, Paul D.: Am. Jour. Med. Sc., 176:181-195, 1928.

PHYSICIANS IN THE EMPLOYMENT OF THE UNITED STATES GOVERNMENT.

Some very interesting information is presented in a recent bulletin of the United States Civil Service Commission. It shows very definitely, through the mind of an unprejudiced reader, that there should be some central control of the medical service provided by the United States. In addition to the three larger services of the Navy, the Army, the Public Health, all under different departments, we find the following disposition of physicians in the Governmental service. In the Department of Agriculture, four are employed, whose sole duty is to interpret the truthfulness or falsity of statements on medical labels. In the Department of Commerce, two physicians are detailed to Pribilof Islands, Behring Sea, six are assigned to the coast survey service, including Alaska and Hawaii, while the sole physician assigned to this service in the Philippines has to take care of the health of the crew. When the health of the crew is excellent he has to fall to and help out in the surveying operations. In the Department of the Interior, eight are on all year around detail in Alaska, three are in the Freedman's Hospital, and forty in St. Elizabeth's hospital. There are 125 full time physicians and 65 contract physicians who have care of the health of the Indian wards of the nation. The Pension Claims Department employs 15 doctors. The Department of Labor is satisfied to get by with 10 doctors, three of whom are in the Child Hygiene Division and seven in the Maternity and Infancy Division. The Treasury Department employs 350 full time medical officers, with the rank of Acting Assistant Surgeon, not commissioned in the Public

Health Service, while one hundred and fifty are on part time. The Veterans' Bureau has the largest number of physicians in any division, twelve hundred receiving pay from the Government. In the Panama Canal Zone, 28 men are employed in dispensary and quarantine work in addition to those in the Public Health, Army and Navy services. Certain divisions of the Government not under main departments also employ a few physicians; thus there are two in the Government Printing Office; one in the Bureau of Engineering; one is doing relief service, and one is giving his service to the Civil Service Commission.

In addition to the definite impression that all these medical services should be under one head, one is also struck by the variegated and widely dispersed duties of these medical men. Contrast the life of the two physicians assigned to the Pribilof Islands, or the eight in the Alaskan medical service, and the 125 in the Indian service with its strenuous activity, and physically exhausting demands with the peaceful and quiet existence of the 40 physicians who are in St. Elizabeth's Hospital, or the four labratorians in the Department of Agriculture, or the seven men in the Maternity and Infancy Division. It makes one appreciate more than one usually gives thought to the matter, in looking over the list of doctors employed by the United States how far flung is this United States, and how many activities the Federal Government undertakes.

INTERSTATE POSTGRADUATE ASSOCIATION.

The Interstate Postgraduate Medical Association of North America will meet in Atlanta, Georgia, this year, from October 12 to October 19. The preliminary program includes the names of medical men of national and international reputation. These meetings are always well worth while, and certainly this meeting in Atlanta presents a wonderful opportunity close at hand.

THE IMPORTANCE OF RESPIRATORY DISEASES AS A CAUSE OF DISABILITY ANONG INDUSTRIAL WORKERS.—A large electric light and power company, which pays full wages to its employees who are disabled by sickness, keeps a record of the diseases which cause time lost from work. The company asked the United States Public Health Service to co-operate in the analysis of this record. When the tabulations were completed, it was found that more than one-half of all the absences on account of sickness among the men in the employ of the company was caused by diseases of the respiratory system, the more common of which are the ordinary cold, sore throat, tonsilitis, bronchitis, influenza or grippe, and pneumonia. This record is of especial interest, because it includes all absences lasting one day or longer during a ten-year period.

As a cause of absence from work among employees of this company, no other disease group approached in importance the respiratory diseases. In fact ,the respiratory diseases caused more absences than all other diseases combined. It is not unreasonable to suppose that this sickness experience is more or less representative of the experience of other groups of employed persons.

The records of employee benefit associations scattered over the northern and eastern part of the United States tell much the same story. From the recorded experience of 35 different sick-benefit associations having a combined membership of nearly 100,000 persons, it was found that respiratory diseases caused 47 per cent of all the cases of illness for which sick-benefits were paid from 1921 to 1926, inclusive. This source of information covers only the more serious sicknesses, because these associations made payments to their members only when illness caused inability to work for 8 days or longer.

Thus, whether we consider all absences from work on account of sickness, or only those illnesses which lasted longer than one week, we find that approximately one-half of the cases were some form of respiratory sickness. Apparently, man's breathing apparatus is especially liable to microbic attack. With this evidence that the organs of respiration are particularly vulnerable, it is apparent that we ought to take special precautions against respiratory infection.

The sickness records of the electric light and power company showed, also, that the average loss of time on account of sickness was approximately six days a year per man on the payroll. Approximately three of the six days lost from work per annum were lost on account of respiratory diseases.—Bull. U. S. Pub. Health Service, April 19, 1928.

HOSPITAL STAFF TRANSACTIONS

TRANSACTIONS OF STAFF OF SOUTHERN BAPTIST HOSPITAL

Dr. L. R. DeBuys presented a case of Baby R,, born 9/19/27, and seen in hospital in September. The child presented several interesting features. It was not an extremely rare condition, but one that we come across in the newly-born—a case of hemorrhagic disease of the newly-born. This case had been referred to him by Dr. Phillips, who delivered the mother with forceps. The child showed, the first day, an ecchymotic spot under the right eye which was looked upon as a traumatic origin. On the second day, the baby became ill and vomited blood. He was then asked to see it. On examination, the original ecchymotic spot under the right eye was noted as well as two ecchymotic areas over the lower part of the chest, and also similar spots behind the elbows where they had been resting on the mattress, and another spot on the buttocks. She was considerably dehydrated with the fontanels much depressed and overlapping of the sutures. Physical examination was negative, with the exception of the liver, which extended below the costal border about one inch, and the spleen, about one-quarter of an inch below the costal border. Examination of the mouth showed the presence of thrush. The reflexes were all negative. There were no focal symptoms and there was apparently no evidence of any hemorrhage involving the nervous system. There was great difficulty in breathing and an inability to swallow. The temperature was 101.5°F. The birth weight, which was reported to have been 6 lbs. 14½ ozs., when first seen by him, was 6 lbs. 7 ozs. The infant was considered to be desperately ill. The stools showed blood macroscopically. The condition was apparently one of hemorrhagic disease of the newly-born. The blood count showed total red blood cells—2,780,000; white blood cells—8,500; platelets, 61,000, and a differential count of small lymphocytes, 50 per cent; large mononuclears, 18 per cent; polymorphonuclears, 32 per cent. There were present, normblasts and megaloblasts, and poikolocytosis and anisocytosis existed. The bleeding time was 20 minutes and the coagulation time, two minutes. The baby was immediately placed in the incubator at a temperature of 95°F. 10cc. of whole blood was given intramuscularly at eight hour intervals. Adrenalin, one minim, by needle every four hours. 5 grains of calcium lactate was given every four hours. Oxygen was administered continuously, 180 bubbles per minute. 1 per cent gentian violet was applied to mouth twice daily for the thrush. Nasal feeding every four hours was instituted, 50 per cent mother's milk being administered, the milk being expressed from the mother by the Abt breast milker. Instructions were given for no bath and no handling. Because of the vomiting of blood, rather than cause any trauma, feeding was accomplished through the nasal tube, the tube being introduced and allowed to remain in place there, being secured with adhesive. This tube was occasionally changed from one side to another because it was thought that it might cause some irritation. The second day the coagulation time had been reduced to 2½ minutes and the bleeding time to 3½ minutes. The urine showed nothing of any moment. The baby's condition remained more or less stationary until September 23, 1927, when she showed some improvement. September 24, 1927, slight vaginal hemorrhage was noted. September 25, 1927, Ceanothin was given. After September 26th there was no more hemorrhage, and there was no more bloody nasal discharge. The intramuscular injections of blood were given until October 2nd, namely, for a period of about twelve days. The tube feedings, which had been gradually discontinued, were entirely supplanted by the use of the Beck feeder, no further tube feedings being given after October 2nd. The baby was discharged from the hospital on October 14th, at which time the total red blood cells had gone up to 3,960,000; hemoglobin, 90 per cent; coagulation time, 2 minutes; bleeding time of 5 minutes, and the differential count practically normal. During the time the child was in the institution there were two rises in temperature lasting three and four days respectively. The condition responded very nicely to the intramuscular injections of blood. The advantage of giving the blood intramuscularly is that it can be done promptly, there being no necessity for waiting for typing and so on, and the effects are extremely good. In some of the more severe cases where there is sluggish response to the intramuscular injections, he has used the blood intraperitoneally. At the time that this case was here, he had another one at the Touro Infirmary which required intraperitoneal injections besides the other measures adopted in this case. Three injections of the whole blood which had been typed were given in the following quantities: 60 cc., 45 cc. and 45 cc. In cases of this type, the urine as well as the stools should be watched for evidence of hemorrhage. When it is necessary to resort to frequent intramuscular injections of blood, the injections should be gradually diminished in frequency and then in quantity. The baby should not be handled.

Dr. Alton Ochsner chose for his subject a recent case of a patient who was admitted to the hospital, giving a history of having been hit by a truck. She was comatose when she came in, being roused with difficulty. There was some difficulty in obtaining a history, because for several years she had been having attacks of epilepsy. Whether she

had an attack when hit by the truck, or not, was not known. At no time, was there evidence of any shock. Roentgen-ray pictures were taken in the admitting room and Roentgen-ray plates showed a depressed fracture in the paritetal region extending backward. Spinal puncture readings were 18 mm. mercury with some blood. Because of the depressed fracture, it was decided to elevate the bone. This was done on the day she was admitted, but she was treated by dehydration, being given glucose intravenously. On the following day, a craniotomy was done. The depression was found not to be very marked, the outer table being depressed very slightly. On opening the skull, however, it was found that we were dealing with a large hematoma. This was evacuated. The dura was opened and nothing was found. The depression was released and the patient sent back to the ward. She was treated post-operatively with hypertonic glucose, 50 ccs being given immediately after being returned to the ward, and six hours later. The following morning her condition was very much better. She felt fairly well and wanted something to eat. During the first day, the condition remained uneventful. On the evening of the second day she was again somnolent and gave very few answers. We thought we were dealing with the reappearance of the cerebral edema, and physical examination showed hyperflexion on the side of the body opposite the hematoma. I suggested to the interne that more hypertonic glucose be given intravenously and magnesium sulphate by rectum. Before this was done, however, another spinal puncture was done. Much to our surprise, instead of getting a manometric reading of 8-10 mms. of mercury, we were only able to get 1 mm. of mercury. There existed a hypotension of the cerebro-spinal fluid. Had we gone ahead and given the patient a hypertonic solution and attempted to dehydrate her, she probably would have been killed. We gave her 30 ccs. of distilled water intravenously, and within thirty minutes, the patient was well.

Dr. Ochsner then showed a slide which was made by Dr. Mims Gage, who marked out a way of teaching it to the students so that it is something to grasp. It gives an idea of the relationship of the various factors which we have. One thing should be emphasized: too much dependence should not be placed on blood pressure and pulse. At a meeting of the Charity Hospital staff two weeks ago, Dr. Jones reported two cases of cerebral injury treated by dehydration, the spinal fluid readings having shown over a period of time a marked increase of cerebro-spinal pressure, yet there was no increase in the blood pressure at the time. Manometric readings should be made early. The rule is, remove half the excess. Thus, if we have a reading of 18 mms, we have an excess of 10. We remove until the reading is 13. The treatment which we have been teaching to the student is that when a patient is in a state of shock, nothing is done until the shock has been controlled. Following treatment of shock, spinal puncture is done. If there is excess pressure according to the manometric reading, one-half of excessive amount is removed and dehydration commenced. We simply use glucose solution. Weed and McKittrick of Johns Hopkins, use hypertonic saline solution. Sodium chloride undoubtedly will relieve cerebral edema, but not without danger. It is possible to produce tetany as in a case we saw. It must be introduced extremely slowly, not more than 1 cc. per minute.

The point which must be stressed is that hypotension of the cerebro-spinal fluid is rare, but not so rare as we might imagine. Stultz reports three cases. These individuals usually complain of headache. Two were treated by intravenous method, while the third was given large amounts of water by mouth and by duodenal drip. In advanced cases, it is not wise to wait because it is perfectly safe to give 30 ccs. of distilled water intravenously. Often another puncture gives an increased spinal fluid pressure.

Dr. J. Holmes Smith, Jr., spoke regarding a condition of more or less importance, particularly as regards its association with anemia. Diagnostically, it is considered essential to the diagnosis of pernicious anaemia. The condition is known as achylia gastrica. This term really implies an absence, not only of hydrochloric acid, but of all gastric secretion. At the present time it is applied, also, to those cases showing only a lack of hydrochloric acid.

Achylia gastrica, in most instances, is probably the result of a toxemia which gives rise to a gastritis and the gastritis, in turn, interfering with the acid-secreting cells of the stomach. This toxemia may result from conditions in the intestinal tract or be caused by systemic disease, such as syphilis and tuberculosis.

A total absence of free hydrochloric acid, in the stomach, may occur in an otherwise healthy subject and apparently be not incompatible with good health. However, individuals having an achylia gastrica are frequently prone to gastro-intestinal upsets, chief of which is probably a tendency to attacks of diarrhea, due apparently to improper digestion of proteins and a too rapid emptying of the stomach. A more important result of achylia, however, is a tendency for such individuals to develop anemia of varying grades. This anemia appears to be the result of an excessive bacterial invasion of the duodenum, incident to the lack of acid in the gastric contents. Anemia, so produced, is most frequently of the secondary

type, but a certain percentage of the cases develop into a true pernicious or hyperchromic anemia.

Diagnostically, there must be a true, persistent achylia present, before we can assume that any anemia is of the pernicious type.

It is well, at this point, to emphasize that one examination of the gastric contents is not sufficient for the diagnosis of achylia gastrica. The appearance of free hydrochloric acid in the gastric contents is sometimes quite delayed after the giving of a test meal. Sometimes, a simple test meal, such as that of Ewald, will not provoke an acid response, but a protein meal will. If it is suspected that an individual has an achylia gastrica, then the first thing is to make a fractional gastric analysis, colecting the first sample in about thirty minutes and continuing to collect samples until two hours after giving the meal.

If, by the fractional method, no acid is found in the gastric contents, we are still not justified in diagnosing a true achylia gastrica, because there may simply be a temporary suppression of the hydrochloric acid. This suppression of hydrochloric acid or false achylia may be quite temporary or may last for some time.

As an aide in the diagnosis of achylia and also as a means of avoiding delay in diagnosis, we are in the habit of giving such individuals a subcutaneous injection of a preparation known as histamine. Histamine is a protein derivative and has the property of provoking a secretion of hydrochloric acid, provided the gastric cells are capable of functioning.

The histamine may be given immediately after the fractional analysis, or at a later time. Following the giving of histamine, samples of gastric contents are secured at frequent intervals and examined for hydrochloric acid, as in the ordinary method. The appearance of acid may be very soon after giving the drug or it may be delayed. When delayed, samples should be collected for at least an hour and a half.

In those cases which do not respond to histamine, we feel that a diagnosis of true achylia is justified.

It should, probably, also be mentioned that histamine has the property of temporily lowering blood pressure and occasionally the patient will have symptoms such as flushing of the face, tightness in the chest, etc. In his opinion, any symptome complained of are due most likely to protein reaction and not to lowered blood pressure.

Dr. C. W. Allen spoke of a little patient of his and showed some interesting photographs of him, a few taken when the child was younger and some taken just before operation. Dr. Allen said that this was as bad a case of cleft palate as he had ever seen. The patient was operated on twice as an infant and the operations failed. It seemed impossible to do anything for him. It is believed that what success was had with the case was due to several operations and in not trying to do too much at one time. The child, who is now ten years of age, has been operated on five times, his lip having been closed last week. There are now two little holes left and the palate is not closed, but it was not deemed advisable to do anything for several months, depending upon the condition of the tissue which will constantly shrink and get down to a small point beyond which no closing will be desired. The first time, the tissue stitch came loose and the flap fell backward near the midline; the second was made strong and he has a very nice result. One more operation, the sixth, will be necessary.

VICKSBURG SANITARIUM AND CRAWFORD STREET HOSPITAL.

At the regular staff meeting, held July 11, 1928, the following cases were reported:

Intra-Abdominal Hemorrhage from Rupture of Right Ovary.

Dr. G. M. Street—Mrs. R. T. C., aged 23, never pregnant, with a past history which up to one year ago was negative, was seen in this clinic eight months ago, at which time diagnosis of cystic ovary with adherent retroversion was made and operation advised. Medication also was prescribed at that time for an acute digestive disorder. The patient returned home to prepare for necessary surgery, but obtained relief from symptoms and was not heard from again until admission to hospital on July 1.

Ten days ago, immediately following sexual intercourse, was taken with severe pain in right lower quadrant, nausea and backache. A local physician prescribed, and in a few days patient was feeling much better. Eighteen hours before admission, again immediately following intercourse, she had the same pain in abdomen, this time more violent and extending across whole lower portion, nausea, vomiting, and followed in a few hours by fever of 100.4°F. Morphine was required for relief.

On admission temperature was 100.8°F., pulse 110, lower abdomen full with tenderness more acute over lower right quadrant. The slightest pressure on cervix or in right fornix caused acute pain. Leukocytes 18,400, with 92 per cent polymorphonuclears.

Operation: A large quantity of free blood and serum was in the peritoneum and the pelvis filled

with blood clots, old and fresh. Right ovary showed a ruptured cyst and was actively bleeding. The left ovary was cystic and size of goose egg; the uterus was bound down in pelvis; both tubes sealed and distended with clear fluid (chronic hydrosalpinx, bilateral).

We were confronted with a proposition which seemed clearly to indicate removal of both ovaries and tubes in an attractive young woman of 23 years, and this we did not want to do. A small solid portion of the left ovary was dissected free of the large cyst and allowed to remain and the inner third of the right ovary, the most normal part, was dissected free from the hemorrhagic portion and left in place. This seemed to be better than to remove both ovaries entire and then to do an ovarian transplant, as we were able to leave these portions of the ovaries with good blood supply. The tubes were removed, uterus fixed in a forward position, appendix removed, and wound closed without drainage. Patient has made an uneventful recovery.

Surgical Pathology: Right tubes curled in cystic mass 2½x2x1¾ inches, convoluted and kinked. Microscopic: Fibrosis; cystic distal; chronic, some acute inflammatory distal.

Right ovary (section)—1½x1⅝x⅝ inches, moderately soft; filled with blood clot, exuding through opening ¼ inch. Cyst size of pea on surface. Microscopic: Cystoma (multiple); much interstitial hemorrhage; large corpus leuteum, recent, apparently not involved in hemorrhage.

Diagnosis: Appendicitis, chronic and acute; salpingitis, chronic, cystic, bilaterial; hemorrhage of ovary, right; cystoma of ovary, right.

The object in presenting this case is to demonstrate the fact that a serious intro-abdominal hemorrhage occasionally occurs from rupture of the ovary. This is the third case of this type seen in the past three years. The first one presented more serious symptoms of shock than the one here presented. Differential diagnosis from ruptured tubal pregnancy is difficult.

The case was discussed by Drs. A. Street, L. S. Lippincott, S. W. Johnston, L. J. Clark, and J. A. K. Birchett, Jr.

Ulcer of the Duodenum with Long-Standing Chronic Perforation.

Dr. A. Street—Mr. M. J. S., aged 52, a married man with five children, was admitted to the hospital March 19. Onset of symptoms began eight months ago with nausea and vomiting of huge quantities of fluid, not of "coffee ground" type; marked constipation; slight fever, not over 100°F.; no pain except one night when had lower abdominal colic. Following this first attack, he lost 20 pounds in weight. He then improved, become free of symptoms, and gained 25 pounds in weight. There was a recurrence of symptoms one week ago with vomiting of large quantities of fluid, slight fever, slight icterus, constipation and tarry stools, together with extreme prostration and rapid loss of weight. He could feel fluid splashing in epigastric region on shaking.

He had had a period of suffering from hunger pain twenty years ago.

Physical Examination: Temperature 100°F.; blood pressure, 105/90. Extremely weak; emaciated; skin slightly yellow. Physical examination was not remarkable except for the abdomen which was slightly distended and showed visible peristalsis at and slightly above level of umbilicus. Marked succession sounds could be elicited in epigastrium. Liver was enlarged to two inches below right costal margin; edge firm; no other masses made out.

Blood: Hemoglobin, 34 per cent; erythrocytes, 2,400,000; much anisocytosis, some poikilocytosis, slight polychromatophilia; coagulation time 2 minutes; bleeding time, 30 seconds; leukocytes, 12,500; neutrophiles, 91 per cent.

Gastric Contents: Brown color; chemical, blood +++; total acid, 39; free HC1, 36; combined acid, 1; no lactic acid; no bile. Feces showed blood.

Roentgenologic examination: Stomach is very large with marked gastroptosis, much of stomach being below the pelvic brim; otherwise not remarkable. Duodenal cap fills imperfectly and shows deformity consistent in appearance with duodenal ulcer.

The patient was treated by diet and stomach kept fresh by daily gastric lavage for 22 days following admission, with slight improvement.

Operation performed April 10. High right rectus incision. An inflammatory mass was plastered to the under surface of the liver, including gall bladder, upper portion of duodenum and the pylorus, with omentum densely adherent. It was thought inadvisable to attempt to break up this mass, as this could hardly be done without tearing of structures, and furthermore it was not known what the mass might contain. In order to get information as to the condition of the stomach and duodenum, a vertical incision was made in the stomach 1½ inches proximal to the mass. A finger was then passed through the pylorus into the duodenum. A perforated ulcer was easily made out on the upper surface through which the finger easily passed into a cavity on the under surface of the liver, about the size of a lemon. The tissues did not give the impression of being carcinomatous. Gastro-enterostomy seemed to be

the only posible beneficial procedure, and in order to facilitate matters, anterior gastro-enterostomy was easily and rapidly done by anastomosing the jejunum to the exploratory opening in the stomach.

Patient's recovery was uneventful and progress up to the present has been uninterrupted.

Discussed by Dr. S. W. Johnston

Fracture of the Os Calcis, Illustrated by Roentgenologic Studies of Four Cases.

Dr. J. A. K. Birchett, Jr.—Fracture of os calcis is generally due to fall upon the foot from a heighth by contraction of the muscles attached to the tendoachilles or forcible inversion of the sole of the foot. The bad results are raising, shortening and outward deviation of the heel with flattening of the arch, fragments projecting into the sole, loss of motion between os calcis and astragalus, and mechanical interference between os calcis and external malleolus. Temporizing with fracture of the os calcis is courting disastrous results. Average disability is from 12 to 18 months in face of radical treatment, and the more severe cases are permanently disabled. Cotton found 90 per cent permanent partial disability, and Manguson shows a disability of 35 to 75 per cent.

Discussed by Drs. A. Street and S. W. Johnston

Tuberculosis of the Maxillary Sinus.

Dr. E. H. Jones—This case is presented because of the rarity of the condition and the method of treatment. Up to 1907, only 20 cases of tuberlosis of the maxillary sinus had been reported in the literature.

The patient, a man, aged 50, was bleeding from nose every day in amounts from one to four drams and had bled as much as an ounce in one day. He had pulmonary tuberculosis.

Radical antrum operation was performed. A tubercle was found on a septum from the roof, but pathologist was unwilling to make a positive diagnosis of tuberclosis. After treatment by oil according to the Sludder method, purulent material from antrum showed tubercle bacilli. Treatment was then changed to chaulmoogra oil, using every day in five cc. amounts. Condition rapidly improved and after one year there is apparent cure.

Discussed by Drs. A. Street, Lippincott and Johnston.

Aneurism, Probably of the Arch of the Aorta.

Dr. L. J. Clark—The patient, a negro man, aged 52, with pulsating mass size of orange, eroding through upper sternum, slightly to left, of thirty days' duration; had been in excellent health previous to that time. Present symptoms are pain referred down left arm, shortness of breath, partial loss of voice, and slight brassy cough.

Physical examination shows well developed and nourished man, with a heart markedly enlarged, with loud systolic murmur at apex; blood pressure 130/60 right, 120/60 left arm. Flouroscopic examination shows large pulsating mediastinal mass, about 4½x3x4 inches, and extending anteriorly through chest wall. Wassermann test +++.

Discussed by Drs. Johnston, A. Street and Birchett, Jr.

Special Report: The recent meeting of the American Society of Clinical Pathologists.—Dr. L. S. Lippincott.

LEON S. LIPPINCOTT,
Secretary.

METHOD OF CARRYING OUT TWO-STAGE OPERATIONS FOR CARCINOMA OF STOMACH.—Because of the troublesome experience with gastro-enterostomy it occurred to Donald C. Balfour, Rochester, Minn., that the difficulties might be avoided by dividing the stomach completely above the growth, closing the end of the lower segment and re-establishing gastro-intestinal continuity either by a retrocolic end-to-side gastrojejunostomy or an antecolic end-to-side gastrojejunostomy with entero-anastomosis. The advantages of such a procedure are obvious. First, the operation can be done under local anesthesia; it takes but little more time than gastro-enterotomy. Second, perfect drainage of the stomach is established immediately, and the patient can take adequate nourishment without difficulty. Third, the second stage is usually simple, since the pyloric segment is free and can be mobilized quickly and easily. Furthermore, complete exclusion of the pyloric segment for a period of from ten to fourteen days will have lessened the activity of any inflammatory process to an astonishing degree, and growths which at the first operation appeared questionably removable may now be resected with ease. Fnally, there is no interruption in the feeding of the patient, since there is nothing to be done with the upper segment of the stomach at the second stage. He gives a description of his method. —J. A. M. A., June 16, 1928.

MECHANICAL TREATMENT OF EXPERIMENTAL RATTLESNAKE VENOM POISONING.—From the experimental reports made by Dudley Jackson ,San Antonio, Texas, and W. T. Harrison, Washington, D. C., it is quite evident that rattlesnake venom experimentally injected into dogs can readily be removed from the tissues by incision and suction, an animal receiving as high as four minimal lethal doses recovering when treatment has been delayed for one hour. This highly toxic material will escape in part from the edematous tissues if simple multiple punctures of the skin are made. That this fluid is highly toxic is shown by the fact that when injected in other dogs it will cause death with all the signs of venom poisoning. The poison contained in this fluid is neutralied in vitro by the specific antivenin and is not affected by diphtheria antitoxin; that the toxic fluid which is removed contains venom cannot therefore be questioned.—J. A. M. A., June 16, 1928.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

Report of the Examination of the Books of the Orleans Parish Medical Society, New Orleans, for the Year Ending December 31st, 1927

New Orleans, La., May 15th, 1928.

Orleans Parish Medical Society,
New Orleans, La.

Gentlemen:

In accordance with instructions received from your Treasurer, Dr. J. A. Lanford, I audited the books of the Society for the year ending December 31st, 1927, and submit my report attached herewith.

FINANCIAL CONDITION

Domicile Fund		
Gold Bonds, see folio 12	$31,374.96	
Savings Account, Marine Bank	579.78	$31,954.74
General Fund		
Cash in bank	463.86	
Petty Cash, in office	16.20	
Certificates of deposits	2,000.00	
Inventory of fixtures, see folio 6	658.12	3,138.18
Library Fund		
Cash in bank	178.04	
Petty Cash, in office	4.65	
Gold Bonds, see folio 12	7,878.98	
Inventory of books, see folio 7	27,269.38	
Inventory of fixtures, see folio 8	2,155.45	37,486.50
Medical Relief Fund		114.35
		72,693.77
Less insurance premiums paid in advance and due the Insurance Co. to be paid at a later date		359.03
Net Worth		$72,334.74

The $30,000.00 U. S. Liberty Bonds for account of the Domicile Fund held by the Society for some time were sold for $30,516.49 and various bonds bought for $30,380.96, see folio 11, leaving a credit balance of $135.53 which was placed in a savings account at the Marine Bank in the name of the Domicile Funds Savings Account, together with interest derived from the bonds. The interest derived from these bonds amount to $1,431.50 and interest on the savings account amount to $6.75 making a total profit from this investment of $1,573.78. From this amount a Foster Creek Lumber and Manufacturing Co. bond was bought for $994.00, leaving a credit balance in the savings account December 31st, 1927, of $579.78. A Gillican Chippley Co. bond was purchased for $1,005.67 for account of the Library Fund from cash obtained from the General Fund. A $500.00 Missouri Pacific R. R. Co. bond held by the Society for sometime for account of the Library Fund was called at $537.50 and a Sea Board Air Line bond was purchased for $743.56. The amount paid for this bond was derived as follows:

Proceeds of Mo. Pacific R. R. bond called	$537.50
Cash obtained from the General Fund	145.56
Surplus carried over from 1926 from sale of a Mo. Pacific R. R. bond	60.50
	$743.56

All cash receipts were fully verified and properly recorded. The bonds of the Society are held by the Marine Bank & Trust Co. and the receipts for these bonds are in the bank box at the Marine Bank and were carefully checked by the writer and found correct and in accord with the records in the office.

Respectfully submitted,

L. L. JARREAU,
Auditor.

ASSETS

Domicile Fund				
Gold Bonds			$31,374.96	
Savings Account			579.78	31,954.74
General Fund				
Certificates of deposits, 3½ %		$2,000.00		
Cash in bank		463.86		
Petty Cash in office		16.20		
Office Fixtures Dec. 31/26	$564.63			
Discarded in 1927	3.50			
	$561.13			
Acquired in 1927	96.99	658.12		
		3,138.18		
Less Insurance Premiums paid in advance		359.03		2,779.15
Library Fund				
Cash in bank			178.04	
Petty cash in office			4.65	
Gold Bonds			7,878.98	
Inventory of fixtures Dec. 31/26		1,856.25		
Less discarded in 1927		4.00		
		1,852.25		
Acquired in 1927		303.20		
			2,155.45	
Inventory of books				
Books on hand at Dec. 31/26		25,334.15		
Purchased in 1927	$180.27			
Binding in 1927	683.96			
*Subscriptions	100.00			
*Exchange	26.00			
*Gifts	280.00			
*N. O. Med. & Surg Jl.	665.00	1,935.23		
			27,269.38	
				37,486.50
Medical Relief Fund				114.35
Net Worth				$72,334.74

*Estimated by Miss Marshall, Asst. Librarian.

DOMICILE FUND
Savings Account

Difference between the sale of the $30,000.00 Liberty Bonds and the cost of bonds purchased		$ 135.53
Interest received		
Pontchartrain Apt. Bonds	$ 260.00	
Gulfport Hotel Corp. Bond	180.00	
Fort Worth Property Bonds	325.00	
Grover Stewart Bonds	120.00	
Brown Paper Mills	180.00	
Hibernia Securities	90.00	
Gillican Chippley	30.00	
Nalle Buildings	120.00	
Marine Mortgage	150.00	
	$1,455.00	
Less Commissions paid bank	23.50	$1,431.50
		$1,567.03
Less purchase of the following bond. Foster Creek Lumber & Manufacturing Co. Bond		994.00
		$ 573.03

Interest on savings allowed by bank	6.75
	$579.78

RECEIPTS, GENERAL FUND

La. State Medical Society, Rent	$ 240.00
La. State Med. Society, Tel. & Tel.	104.75
Banquet Fund	630.00
Dr. Davidson, Tel.	.15
Trip to Washington, Miss Marshall refunded by Library Fund	123.39
Tulane Educational Fund, Chair sold	4.00
Part of expense of graphophone records refunded	30.00
Reminiscence sold	1.00
Certificate of deposits redeemed	1,000.00
Interest on Certificate of deposit redeemed	13.72
T. P. Talbot, Tel.	.87
La. State Medical Soc. Dues	1,963.00
Membership Dues	8,287.75
N. O. Medical & Surg. Jl. Tel.	35.95
Insurance Premiums	2,781.95
	$15,216.53

RECEIPTS, LIBRARY FUND

Interest received on investments

Gillican Chippley Bond	$147.00	
Missouri Pacific R. R. Bond	29.40	
Sinclair Cons. Oil	68.60	
St. Chas. Ave. Baptist Church	58.80	
Holland American Bond	58.95	
Baptist Convention of the State of Georgia	58.80	
Sea Board Air Line	19.60	
		$ 441.15
Other receipts		
Appropriation from Gen'l Fund	900.00	
Missouri Pacific Bond called	537.50	
From General Fund and applied on purchase of Sea Board Air Line Bond	145.56	
		1,583.06
		$2,024.21

CASH

General Fund

Cash on hand Dec. 31/26		$ 1,214.56
Receipts		
Insurance Premiums	$ 2,781.95	
Other receipts, see folio	12,434.58	15,216.53
		$16,431.09
Less Disbursements		15,967.23
Cash on hand Dec. 31/27		463.86

Library Fund

Cash on hand Dec. 31/26	928.09	
Receipts	2,024.21	
	2,952.30	
Less Disbursements	2,774.26	
Cash on hand Dec. 31/27		178.04
Total cash on hand Dec. 31, 1927, both funds		$ 641.90

INVENTORY OF FIXTURES

General Fund

1 Steel Filing Cabinet		$ 35.00
6 Cardboard Cases		3.00
1 Safe		30.00
4 Wooden Tables		7.00
2 Flat Desks		25.00
1 Addressograph		40.00
1 Addressograph File		10.00
1 Typewriter		83.03
2 Swivel Chairs		10.00
12 Chairs		12.00
1 Directors' Table		25.00
1 Gavel and Block		10.00
1 Stove		38.40
1 Protectograph		20.00
1 Clock		7.50
1 Black Board		.75
2 Fire Extinguishers		12.00
1 Brass Cuspidor		1.50
5 Waste Baskets		2.50
1 Ballot Box		1.50
1 Multigraph		50.00
1 Multigraph Stand		4.00
1 Step Ladder		1.50
1 Awning		12.65
1 Hat Rack		1.50
1 Globe Fixture		13.95
1 Table Lamp		11.50
1 Translux Screen		90.85
1 Door Check		1.00
		$561.13
Acquired in 1927:		
1 Chair	$19.50	
1 Addressograph	77.49	96.99
		$658.12

INVENTORY OF BOOKS

Library Fund

Books on hand Dec. 31/26		$25,334.15
Purchased in 1927	$180.27	
Binding in 1927	683.96	
*Subscriptions, 1927	100.00	
*Exchange	26.00	
*Gifts	280.00	
*N. O. Med. & Surg. Journal	665.00	
		1,935.23
		$27,269.38

*Estimated by Miss Marshall, Asst. Librarian.

INVENTORY OF FIXTURES

Library Fund

3 Wooden Tables	9.00	
9 Chairs	9.00	
24 Rows Wood Shelves	150.00	
1 Ink Well	.50	
15 Rows Steel Shelves	1,196.28	
1 Catalogue Case & Stand	125.00	
1 Book Truck	50.00	
1 Flat Top Desk	30.00	
1 Typewriter	25.00	
1 Steel Filing Cabinet	35.00	
Cardboard Boxes	100.00	
Filing Boxes	45.35	
Lights	18.42	
1 Kardex Filing Cabinet	43.20	
1 Swivel Chair	15.50	
		$1,852.25
Acquired in 1927:		
5 Sections Steel Shelves	118.00	
1 Nine Drawers Catalogue Case	120.60	
2 Oscillating Fans and installing same	64.60	303.20
		$2,155.45

EXPENDITURES, GENERAL FUND

Salaries

Marshall, Miss, Asst. Lib.	$1,800.00	
Maier, Miss, Asst. Secty.	1,200.00	
Lathrop, Miss, Stenographer	50.00	
Coleman, Carl, Porter	600.00	
Homer, Alfred, Porter	60.00	
Craig, Chas.	60.00	
Jarreau, L. L.	35.00	$ 3,805.00

Miscellaneous

Petty Cash	255.00	
Telephone and Telegraph	267.70	
Insurance Premium	17.50	
Heat and Light	69.57	
Ice	48.65	
N. O. Med. & Surg. Jl.	300.00	
Stationery & Off. Supplies	187.35	
Stencils	4.00	
Addressograph	77.49	
Chair, One	19.50	
Floral Offerings (Deceased Members)	46.12	
Rental of Bank Box	5.00	
Library Appropriation	900.00	
Miss Marshall, Trip to Washington	123.39	
Times-Picayune, Advertising	7.92	
Window Panes	5.00	
Keys for Safe	4.00	
Phonograph Records	60.00	
Repairing Elec. Fans	15.75	
Typewriter Repairs	10.64	
Dr. M. J. Gelpi, (Chaille Memorial Oration)	250.00	
Dr. H. T. Simon (Honorarium)	122.00	
Long Life Week, Exhibit Exp.	50.00	
Harcol Motion Picture Co.	25.00	
Dr. Paul Gelpi, Banquet	630.00	
Dr. H. Popkins, Excess dues	1.50	
Election Commissioners	10.00	
Dr. R. VanWart, excess dues	2.00	
Part payment of Sea Board Air Line Bond	145.56	
Gillican Chipley Bond	1,005.67	
Am. National Life Ins. Co.	2,422.92	
La. State Medical Society	1,963.00	
Whitney Bank 3½ % Certificates	3,000.00	
Dr. Gelpi, Exp. Installation Meeting	100.00	
		12,162.23
		$15,967.23

DISBURSEMENTS, LIBRARY FUND

Magazines	$ 583.20
Research and Abstracts	21.00
Dues	10.00
Drayage and Express	70.68
Binding	683.96
Petty Cash	55.00
Books	180.27
Fixtures	303.20
Sea Board Air Line Bond	743.56
Trip to Washington, Miss Marshall	123.39
	$2,774.26

DETAIL OF SALE OF THE $30,000.00 LIBERTY BONDS—DETAIL OF BONDS BOUGHT FROM RETURNS OF SAID SALE.

Sale of Liberty Bonds

Date	Par Value	Price	Interest	Total
2/ 8/27	10,000,000	100.23/32	77.99	$10,169.87
2/28/27	3,000.00	100.20/32	36.48	3,055.23
2/10/27	3,000.00	100.22/32	30.10	3,050.73
2/ 8/27	7,000.00	100.7187	28.59	7,118.90
2/11/27	2,000.00	100.19/32	20.54	2,032.42
2/10/27	2,000.00	100.6875	20.06	2,033.81
2/12/27	2,000.00	100.685	20.92	2,034.62
4/ 5/27	1,000.00	100.14/32	16.53	1,020.91
	$30,000.00			$30,516.49

BONDS PURCHASED FROM RETURNS OF SALE OF LIBERTY BONDS.

Date	Par Value	%	Securities	Price	Interest	Total Cost
2/ 8/27	$2,000.00	6½	Fort Worth Properties	100.	29.97	$2,029.97
2/28/27	3,000.00	6½	Fort Worth Properties	100.	57.40	3,057.40
2/ 8/27	3,000.00	6	Hotel Markham	98.	78.50	3,018.50
2/ 9/27	5,000.00	6	Marine Mortgage	100.	5.83	5,005.83
2/10/27	3,000.00	6	Hibernia Securities	100.88	19.50	3,045.90
2/ 9/27	2,000.00	6	Nalle Office Building	100.	12.33	2,012.33
2/ 8/27	2,000.00	6	Grover Stewart	100.	42.33	2,042.33
2/ 8/27	3,000.00	6	Brown Paper Mills	100.	33.50	3,033.50
2/11/27	2,000.00	6½	Pontchartrain Apts.	100.	57.78	2,057.78
2/10/27	2,000.00	6½	Pontchartrain Apts.	100.	57.42	2,057.42
2/12/27	2,000.00	6	Nalle Office Building	100.	14.33	2,014.33
4/ 5/27	1,000.00	6	Gillican Chipley Co.	99.	15.67	1,005.67
	$30,000.00					$30,380.96

Sale Price of Liberty Bonds	$30,516.49
Cost of various bonds (above)	30,380.96
Profit	$ 135.53

BONDS

Domicile Fund

SECURITIES	Receipt Number	Rate	Par Value	Cost with Interest
Fort Worth Properties	3056	6½	$5,000.00	$ 5,087.37
Hotel Markham	3054	6	3,000.00	3,018.50
Marine Mortgage	3053	6	5,000.00	5,005.83
Hibernia Securities	3510	6	3,000.00	3,045.90
*Nalle Office Building	3577	6	4,000.00	4,026.66
Grover Stewart	3055	6	2,000.00	2,042.33
Pontchartrain Apartments	3057	6½	4,000.00	4,115.20
Gillican-Chipley	3510	6	1,000.00	1,005.67
Brown Paper Mills	3057	6	3,000.00	3,033.50
Foster Creek Lumber & Mfg. Co.	3245	6	1,000.00	994.00
				$31,374.96

*The Nalle Office Building Bonds have since been called and the following bonds acquired:

	Par Value
Cloverland Dairy Product Co.	$2,000.00
B. G. Carbajal, Inc.	1,000.00
Interstate Hotel Co.	1,000.00

Library Fund

SECURITIES	Receipt Number	Rate	Par Value	Cost with Interest
Sinclair Oil Corporation	3249	6	$1,000.00	$1,015.19
Holland American Line	3051	6	1,000.00	933.00
Ex. Convention of the Baptist Com. of Georgia	2174	6	1,000.00	1,019.50
St. Charles Ave. Baptist Church	2174	6	1,000.00	1,024.50
Gillican Chipley	2694	6	1,000.00	1,151.23
Gillican Chipley	2841	6	1,000.00	986.33
Gillican Chipley	3058	6	1,000.00	1,005.67
Seaboard Air Line	3257	6	1,000.00	743.56
				$7,878.98

SURPLUS

For Period January 1st to December 31st, 1927

Receipts:				
General Fund, see folio 3			$15,216.53	
Library Fund, see folio 4			2,024.21	$17,240.74
Disbursements:				
General Fund		$15,967.23		
Less Capital Investment:				
Office Fixtures, see 6	$ 96.99			
Gillican Chipley Bond	1,005.67			
Certificates of deposit	2,000.00	3,102.66	12,864.57	
Library Fund		2,774.26		
Less Capital Investment:				
Binding	683.96			
Books	180.27			
Fixtures	303.20			
Sea Board Air Line Bond	743.00	1,910.43	863.83	
				$13,728.40
				$ 3,512.34
Less Insurance Premium collected in advance:				
Premiums Collected		2,781.95		
Paid National Life Insurance Co.		2,422.92		359.03
Net Surplus for the year				$ 3,153.31

Total Capital Investment:

General Fund	$3,102.66
Library Fund	1,910.43
	$5,013.09

The amount of $5,013.09 was derived as follows:

Above surplus	$3,153.31
Insurance premium	359.03
Cash, General Fund	750.70
Cash, Library Fund	750.05
	$5,013.09

MEMBERSHIP

ADMISSIONS AND RESIGNATIONS

ADMISSIONS—ACTIVE MEMBERS

1. Alexander, L. W.
2. Anderson, G. A.
3. Cohen, Sam C.
4. Collier, Geo. B.
5. Devron, L. E.
6. Duffy, Morris J.
7. Dismuke, Lily L.
8. Eagleton, John T.
9. Efron, B. G.
10. Gillespy, R. R.
11. Hardin, Geo. L.

* Neal, Paul R.

12. Longo, D. V.
13. Maurer, E. H.
14. Ochsner, Alton
15. Oliphant, T. H.
16. Newhauser, Mayer
17. Palermo, Jos. P.
18. Jung, T. A.
19. Sanders, John T.
20. Scott, L. C.
21. Vidrine, Clifford
22. Weiner, Elias

† Doussan, J. E.

*Elected and never qualified.

†Reinstated and never qualified.

ADMISSIONS—INTERNE MEMBERS

1. Durance, F. Y.
2. Kuhn, Lloyd J.
3. Long, J. W.
4. McComisky, A. J.
5. Roeling, W. H.
6. Saiewitz, Sam B.
7. Weiss, Carl A.
8. Meyer, Paul R.

ADMISSIONS—ASSOCIATE MEMBERS

1. Hava, Walter C.
2. Meyer, H. H.
3. Popkins, H. J.
4. Laurens, Henry

HONORARY MEMBERSHIP

1. Knolle, W. H.
2. Rabbi M. Silber

RESIGNATIONS

1. Crebbin, J. T.
2. *Cully, P. G.
3. Durrance, F. Y.
4. Heninger, B. R.
5. Lisenby, J. O.
6. Mendelson, R. W.

*Interne.

REMOVALS

1. Garnier, W. V.
2. Gillespy,
3. Graves, W. E.

DECEASED MEMBERS

1. Adolph, C. A.—December 11th, 1927.
2. Bohne, P. W.—March 31st, 1927.
3. Moss, E.—March 22nd, 1927.
4. McCutchon, P. B.—May 12th, 1927.
5. Parham, F. W.—May 6th, 1927.
6. Provosty, L. M.—September 9th, 1927.
7. Rich, F. G.—May 12th, 1927.

SIMULTANEOUS CHOLECYSTOGRAPHY AND DETERMINATION OF HEPATIC FUNCTION.—Simultaneous cholecystography and the determination of the excretory function of the liver, as is done according to the methods of Rosenthal and others, is possible with the use of sodium phenoltetraiodophthalein. W. H. Cole, Glover H. Copher and Evarts A. Graham, St. Louis, use larger amounts of this dye (to accomplish the visualization of the gallbladder simultaneously) than those ordinarily employed in hepatic functional tests and are convinced that the determination of the excretory function of the liver by this means gives very valuable information in the differentiation between obstructive jaundice due to malignant disease and that due to stones and inflammations. They found that patients suffering from carcinoma of the liver, whether primary or metastatic, revealed a relatively low retention, the average figure being 28 per cent one-half hour after the injection. The ability to differentiate between jaundice caused by carcinoma of the liver and jaundice caused by stone in the common duct is even more accurate if there is opportunity to observe the patient over a period of several days. If the jaundice caused by obstruction of the common duct by stone is present over several days in equal or increasing degree, the amount of retention of dye will show a significant increase during the interval. On the other hand, if the jaundice is produced by carcinoma of the liver or by carcinoma of the pancreas, the amount of variation will not show any appreciable change. Perhaps the greatest value obtained from the readings on hepatic function in the series is in the determination of operability. Of the patients operated on in this series, in whom hepatic function had previously been determined, two died following cholecystectomy and one died following gastro-enterostomy for ulcer. Only one was jaundiced—a patient with obstruction of the common duct by stone for which a cholecystectomy and choledochostomy was performed. The amount of retention in each of these three patients was 70, 90 and 75 per cent, respectively. These figures represent a retention as high as or higher than that found in any of the other patients on whom operation was performed in this series. The authors feel, therefore, that any patient showing a high retention of dye following the injection of phenoltetraiodophthalein is a poor operative risk and the minimum amount of operative work should be done. The patient's condition should be reinforced by such measures as intravenous injections of dextrose and transfusions. Evidence is encountered which leads to the belief that a very marked degree of hepatic injury is necessary before the delayed excretion of the dye by the liver will affect the production of the shadow of the gallbladder. Normal cholecystograms have been observed when the retention of the dye was as high as 60 or 70 per cent one-half hour after injection of the dye. It is true, however, that in the majority of patients with retention as great as this pathologic cholecystograms were obtained, but this is to be expected since operation has revealed either cholecystitis or edema of the gallbladder of severe grade.—J. A. M. A., April 7, 1928.

LOUISIANA STATE MEDICAL SOCIETY NEWS

H. Theodore Simon, M. D., Associate Editor.

Dr. Elijah Madison Ellis, 61, prominent Crowley physician and surgeon, and past president of the State Medical Society, died at 1:30 P. M., August 10, 1928, at the Crowley Sanitarium, following a two weeks' illness with pneumonia.

Funeral services were held at 3 P. M., August 11, from the First Methodist Church, interment followed in the Crowley cemetery.

His death ended a constant fight made by doctors and nurses since he became very ill following a trip to his farm near Gueydan two weeks ago. For the past ten days hope for his recovery fluctuated and wavered, until August 10, when a turn more serious than any preceding resulted in the announcement that attending physicians had abandoned hope.

ELIJAM MADISON ELLIS

Respected for his professional standing, and recognized as one of the leading surgeons of the state, Dr. Ellis' passing brought from local doctors who had known him intimately expressions of the highest regard and of regret at the loss the community had suffered.

His election as president of the State Medical Society in 1925-1926 was pointed to as evidence of his standing among the physicians of Louisiana, while locally his work in his practice as a physician as well as in public health and civic projects was recalled by many. Not the least among the things referred to was the Crowley Sanitarium, which he established about 15 years ago, the present institution in the northeastern part of the city having been erected after fire had destroyed the one in South Crowley.

For about thirty years Dr. Ellis had been a resident of Crowley, having come to this city to begin his practice within a few years after his graduation from medical school. He was born at Poplar Creek, Montgomery County, Mississippi, on December 14, 1866, the son of Elijah L. and Elizabeth Thrailkill Ellis. After his preliminary education had been received, he attended Memphis Medical College, from which he was graduated in 1895.

Dr. Ellis is survived by his widow, a son, Earl Ellis, and a daughter, Mrs. H. Gordon Brunson, two brothers, J. C. Ellis of New Orleans, and J. F. Ellis of West Point, Miss., a half brother, E. G. Ellis, of Poplar Creek, Miss.; three sisters, Mrs. P. R. Brown, of West Point, Miss.; Mrs. J. W. Nunnery and Mrs. J. P. Matthews of Crowley, in addition to other relatives.

Dr. William Scheppergrell, president of the Audubon Park Commission and the New Orleans Zoological Society, and one of the outstanding physicians and civic leaders of the city, died at 1:30 P. M., Thursday, August 9, 1928, following an operation at Mercy Hospital.

Requiem mass was conducted at the Church of the Holy Name of Jesus,Loyola University, at 10 A. M., August 10. The Rev. John J. Navin, S. J., officiated. Interment was in Metarie Cemetery.

Scion of an old South Carolina family, Dr. Scheppegrell was born in Hanover, Germany, in 1860, while his parents were on a visit to that country. He grew up in Charleston and attended the College of Charleston, where he received the degree of master of arts. He then attended the Medical College of South Carolina, receiving the degree of doctor of medicine in 1882. He also took extensive work in electrical engineering.

In 1882 he married Signorina Jessie Agatha Gambati of Venice, Italy. They had one child, Agatha, now Mrs. N. F. Thiberge of New Orleans. Mrs. Scheppegrell died in 1921.

After the Charleston earthquake of 1886, Dr. Scheppegrell decided to move to New Orleans, coming here in 1890. He brought a letter of introduction to Dr. Arthur de Roaldes, founder of the Eye, Ear, Nose and Throat Hospital, and his expert work in repairing a faulty electrical hospital appliance soon after his arrival in New Orleans induced Dr. de Roaldes to offer him a position on the hospital staff. He served as chief surgeon on the staff until 1893, when he went into private practice.

In addition to his medical work, Dr. Scheppegrell was an outstanding figure in civic enterprises. He was president of the Audubon Park Commission for about twelve years and president of the Zoological Society for the same length of time. He held both of these offices at the time of his death.

In medical circles Dr. Sceppegrell occupied a notable position. In addition to his affiliation with the Eye, Ear, Nose and Throat Hospital, he was chief of the hay fever clinic and the eye, ear, nose and throat clinic of Charity Hospital. Besides writing a number of books and scientific articles on hay fever and troubles of the eye, ear, nose and throat he was the inventor of several appliances widely used in hospital clinics.

He served as president of the American Academy of Ophthalmology and Otology; president of the American Hay Fever Association, vice-president of the American Laryngological, Rhinological and Otological Society, president of the Federation of Catholic Societies, and president of the St. Cecilia Choral Society, and an associate editor of "The Annals of Otology, Rhinology and Laryngology." His articles appeared in many medical periodicals.

Dr. Scheppegrell was also the author of several books, the most widely known of which are "Hay Fever and Asthma, Cause, Treatment and Cure," "Electricity in Diseases of the Nose, Throat and Ear," "Non-Malignant Tumors of the Throat," and others.

Besides his daughter, Mrs. Thiberge, who is the wife of Dr. Scheppegrell's medical associate, he is survived by one sister, Mrs. Wilhelmina Keppler of New York City; a nephew, William Scheppegrell, manager of the Audubon Park swimming pool; two grandchildren and a number of relatives in Charleston and San Francisco.

SHREVEPORT MEDICAL SOCIETY RADIO LECTURES.

In line with the general thought as seemingly existent among the medical profession today regarding the education of the public on medical matters, the Shreveport Medical Society has arranged and have now in operation a systematic course of lectures which are being broad-cast over Radio Station KWKH of Shreveport and published in the Shreveport Times.

This work is being done under auspices of the Shreveport Medical Society with a whole-hearted co-operation of the broadcasting station KWKH, owned and operated by Mr. W. K. Henderson of Shreveport and the Shreveport Times.

The Shreveport Medical Society is glad to report to the profession through the columns of the Journal that they have met no opposition whatever in the endeavor, but on the other hand, co-operation from every source. The Times and Mr. Henderson, owner of KWKH, have been unusually liberal in donating the space and time, and the Shreveport Medical Society is sure the profession at large feels the appreciation for this service as they of the Shreveport Medical Society do.

The following is an outline of their program, the first three months of which have already been delivered.

Program broadcast between 10:00 and 10:30 P. M.:

6/15/28—Medical Ethics. Dr. J. E. Knighton.

7/15/28—Diseases of Children. Dr. Robert Lucas.

8/15/28—Tuberculosis. Dr. Chas. Gowen.

9/14/28—Cancer. Dr. J. C. Willis.

10/12/28—Cardio Renal Diseases. Dr. W. J. Norfleet.

11/16/28—Acute Respiratory Diseases. Dr. J. B. Bodenheimer.

12/14/28—Skin Cancer. Dr. C. B. Erickson.

1/18/29—Diseases of Children. Dr. M. S. Picard.

2/15/29—Diseases of Women. Dr. Louis Abramson.

3/15/29—Home Hygiene. Dr. W. J. Sandidge.

4/19/29—Gastro Intestinal Diseases. Dr. T. P. Lloyd.

5/17/29—Diseases Ear, Eye Nose and Throat. Dr. J. L. Scales.

The quarterly meeting of the Lafourche Valley Medical Society was held at Donaldsonville on August 8, at the Elks Home.

The attendance in point of numbers of the local membership was gratifying, and the occasion was graced by the presence of several honorary members of New Orleans.

The scientific end of the program was taken up by the presentation of two papers: Surgery of the Anal Region under Local Anaesthesia, by Dr. C. W. Allen. Pyelitis, in Infancy and Early Childhood, by Dr. D. G. Lemkowitz.

The next quarterly meeting of the society will be held at Houma on Wednesday, November 14.

It has pleased the many friends of Dr. H. E. Menage to learn that at a recent meeting of the Board of Administrators of the Tulane University of Louisiana approved the recommendation of the Executive Faculty of the Graduate School of Medicine that he be appointed Professor Emeritus of Dermatology, effective as of the close of the session 1926-1927.

Post-Graduate Lectures in English, under direction of the Paris University Medical School.

Ten lectures with roentgenologic projections and anatomical specimens, concerning diseases of the bronchi, under direction of Doctor Sergent, professor of Propedeutic Medical Clinic, Charite Hospital (October 29 to November 3, 1928)—Fees: 500 francs—$20.00.

Diseases of the heart and vessels: 9 lessons by Doctor Clerc, associate professor, physician to the Lariboisiere Hospital (October 20 to 30, 1928)—Fees: 500 francs—$20.00.

Peuriculture and diseases of children: 24 lectures and practical demonstrations by Doctor Armand-Delille, physician to Herold Hospital, and Doctor Weill-Halle, physician to Charite Hospital (October 8 to 20, 1928)—Fees: $1,000 francs—$40.00.

Surgery of the digestive tract and liver with operative demonstrations and operations on the dog, under the direction of Doctor Gosset, professor of the Surgical Clinic at the Salpetriere (October 15 to 20, 1928)—Fees: 500 francs—$20.00

Ophthalmology and Oto-Rhino-Laryngology: 10 lesson by Doctor Morax, ophthalmologist to the Lariboisiere Hospital, and 10 lessons by Doctor Lemaitre, associate professor, oto-rhino-laryngologist to the Saint-Louis Hospital (October 2 to 26, 1928)—Fees: 500 francs for each series of 10 lessons—$20.00.

A certificate, signed by the Professor and the Dean of the Faculty of Medicine of Paris, will be given after each course to every doctor who has attended it regularly.

For further information and detailed program of each course, apply to the Secretary of the "Association pour le Development des Relations Medicales," Salle Bechard, Faculte de Medecine, 12 rue de l'Ecole-de-Medecine, Paris (6e).

Other courses in English may be arranged by applying to the Secretary of the above association.

Pamphlet of information on file at the office of the Orleans Parish Medical Society.

Programs of the Annual Meeting of the Southern Tuberculosis Conference to be held in Biloxi, September 12 to 15, at the Conference Headquarters, Buena Vista Hotel, are being distributed by the Tuberculosis and Public Health Asociation of Louisiana, which is one of the thirteen affiliated state organizations. The other states represented in the Conference are: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Texas, Mississippi, Tennessee, Kentucky, Arkansas, and Oklahoma.

Miss Gertrude Rando, executive secretary of the Tuberculosis & Public Health Association of Louisiana, will represent Louisiana on the Speakers' Program. She has been selected for the honor to respond in behalf of the Conference to the Address of Welcome by Hon. John J. Kennedy, Mayor of Biloxi.

The program will also include the Southern Sanatorium Asociation. Among the major subjects on the program are: "Management of the Tuberculosis Problem in Children" and "Tuberculosis in the Negro".

"The Southern Tuberculosis Conference provides an opportunity for Tuberculosis workers, public health officials, physicians, nurses and friends of the great health movement to meet in annual session to discuss the latest methods in the prevention and treatment of Tuberculosis" said Miss Rando. "The matter of Memberships in the Conference is a responsibility for each state secretary and we ask our friends to communicate with us with regard to membership and attendance at the Conference, at State Association Headquarters, 535 St. Charles Street, New Orleans, or 'phone Raymond 1741.

GERTRUDE RANDO,
Executive Secretary.

MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

J. S. Ullman, M. D., Associate Editor.

Dr. B. S. Guyton of Oxford has returned from Europe where he spent some time in post-graduate work.

The Staff Meeting of the Vicksburg Sanitarium was held on August 10th. The program was as follows:

1. Carcinoma of the Stomach, Dr. A. Street.
2. Acute Lymphatic Leukemia, Dr. G. M. Street.
3. Intestinal Obstruction with Clinical Tubercular Peritonitis," Dr. J. A. K. Birchett, Jr.
4. Pernicious Anemia, Dr. L. S. Lippincott.
5. Meningococcic Meningitis, Dr. L. J. Clark.
6. Treatment of Vincent's Angina, Dr. C. J. Edwards.
7. Oblique Fracture of the Middle Third of Humerus, Dr. H. H. Johnston.

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held in Vicksburg on August 14. The following program was presented:

1. Some Unique Cases of a Country Doctor, Dr. W. H. Scudder.
2. Some Unoriginal Remarks on Mastoiditis, Dr. E. F. Howard.
3. Carcinoma of the Stomach, Dr. A. Street.

At the July meeting, Dr. Hugh H. Johnston of Vicksburg was elected to membership.

Dr. J. C. McNair of Fayette, Miss., is at present doing post-graduate work in diseases of the chest at the Mississippi State Sanitorium.

The meeting of The Interstate Post Graduate Medical Asociation of North America will be held at Atlanta, Georgia on October 12 to 19, 1928, with headquarters at the Auditorium Armory. The preliminary announcement gives promise of a very attractive program. The following names listed are sufficient evidence of the type of papers and discussions to be presented:

Ayer, Wardner D., Syracuse, N. Y.
Beck, Harvey G., Baltimore.
Bevan, Arthur Dean, Chicago.
Bloodgood, Joseph C., Baltimore.
Bourne, Aleck W., London, England.
Brooks, Harlow, New York.
Burrell, Lancelot S., London, England.
Buzzard, Sir Farquhar, London, England.
Cannon, W. B., Cambridge, Mass.
Case, James T., Battle Creek, Mich.
Cassidy, Louis L., Dublin, Ireland.
Christian, Henry A., Boston.
Crookshank, Francis G., London, England.
De Buys, Lawrence R., New Orleans.
Didgeon, Leonard, London, England.
Dundas-Grant, Sir James, London, England.
Dunhill, Thomas P., London, England.
Elliott, Charles A., Chicago.
Erdmann, John F., New York.
Evans, J. Howell, London, England.
Finney, John M. T., Baltimore.
Forsyth, David, London, England.
Fox, L. Webster, Philadelphia.
Graham, Evarts, A., St. Louis.
Haggard, William D., Nashville, Tenn.
Hinman, Frank, San Francisco.
Horsley, J. Shelton, Richmond, Va.
Ibbotson, William, London, England.
Joslin, Elliott P., Boston.
Lahey, Farnk H., Boston.
Lewis, Dean D., Baltimore.
Leyton, Otto F., London, England.
Low, G. Carmichael, London, England.
Lynch, Kenneth M., Charleston, S. C.
MacAuley, Charles J., Dublin, Ireland.
Marlow, F. W., Toronto, Canada.
McDonagh, James E., London, England.
McElroy, James B., Memphis, Tenn.
McLester, James S., Birmingham, Ala.
Miller, C. Jeff, New Orleans.
Moorehead, T. Gillman, Dublin, Ireland.
Muller, George P., Philadelphia.
Naffziger, Howard C., San Francisco.
Oliver, Sir Thomas, Newcastle-upon-Tyne, England.
Orr, Thomas G., Kansas City, Mo.
Pearson, Wilfred, London, England.
Polak, John O., Brooklyn, New York.
Roberts, Stewart R., Atlanta, Georgia.
Shaw, Maurice E., London, England.
Smith, Elsworth S., St. Louis, Mo.
Thompson, A. Ralph, London, England.
Thursfield, Hugh, London, England.
Ward, R. Ogier, London, England.
Warthin, Alfred S., Ann Arbor, Mich.
Waugh, George E., London, England.
Wheeler, William I., DeCourcy, Dublin, Ireland.
White, William A., Washington, D. C.
Witherspoon, Jack, Nashville, Tenn.
Wyard, Stanley, London, England.
Young, Hugh H., Baltimore.
Deaver, John B., Philadelphia.
Mayo, Charles H., Rochester.
Crile, George W., Cleveland.
Barker, Lewellys F., Baltimore.

Cabot, Hugh, Ann Arbor
Core, Donald, Manchester, England

The officers of the association are:

PRESIDENTS OF CLINICS

Mayo, William J., Rochester, Minn.
Mayo, Charles H., Rochester, Minn.

PRESIDENT

Barker, Lewellys F., Baltimore.

PRESIDENT-ELECT

Deaver, John B., Philadelphia.

MANAGING-DIRECTOR

Peck, William B., Freeport, Ill.

EXECUTIVE SECRETARY AND DIRECTOR OF EXHIBITS

Henes, Edwin, Jr., Milwaukee, Wis.

TREASURER AND DIRECTOR OF FOUNDATION FUND

Langworthy, Henry G., Dubuque, Iowa.

SPEAKER OF THE ASSEMBLY

Brown, George V. I., Milwaukee, Wis.

The association will be the guests of the Fulton County Medical Association and of the Medical Association of Georgia. Dr. Marion T. Benson of Atlanta is general chairman of the local committee.

It is the policy of this association to avoid "sections" and to offer the entire programs to one large audience.

REDUCTION IN INCIDENCE OF INFECTIOUS DISEASES IN MISSISSIPPI.

In Mississippi, during the ten-year period 1916-1926, there have been the folowing decreases in the incidence of infectious diseases:

74% decrease in number of cases of typhoid fever.

45% decrease in number of cases of malaria.

51% decrease in number of cases of tuberculosis.

54% decrease in number of cases of smallpox.

Human beings contract infectious diseases directly or indirectly from other human beings or from animals. From a sanitary point of view, every individual in a community represents a potential source of infection for others.

The reductions shown above are due in great part to modern methods of diagnosis employed by physicians, and public health supervision rendered by the Mississippi State Board of Health and, in the case of counties having full-time health work, by the local health department. People living in counties having full-time health service are enjoying a protection given them by the work of the health department which is not available in counties not maintaining full-time health service.

Disease carriers are a problem which plays a significant role in the control of infectious diseases. A public health organization cannot fulfill its function merely by being ready to suppress outbreaks of disease as soon as the first cases are recognized. Protection against these carriers is only posible by so organizing the community life the the everyday contact of individuals with infectious materials may be reduced to the minimum, adequately supervising mosquito control work, milk and water supplies, proper disposal of human waste, and other phases of sanitation, and by so influencing the habits, nutrition, occupation, etc. of the community that the average power of resistance may be raised to and maintained at the highest posible level.

A full-time health department is a reasonably dependable safeguard which may be thrown about the people of a county to insure a reduction in the incidence of unnecessary sickness and deaths.

CLINICAL DIAGNOSIS OF HUMAN INTESTINAL PROTOZOA.—During the past ten years our knowledge of the intestinal protozoa of man has been revolutionized. Instead of diagnosing an intestinal infection as due to "monads," "cercomonads," "ciliated monads" or "flogellates" it is now possible to identify the organisms present without much difficulty. Some of the intestinal protozoa of man are apparently so rare that a physician would ordinarily never encounter them. Most of the individuals infected with protozoa are carriers and may remain infected for years. The various species are not antagonistic to one another, hence one person may carry two or more species at the same time. The diagnosis of intestinal protozoa requires the collection of fresh faeces, dental scraping and urine. No positive diagnosis should ever be made without finding the protozoa in the samples collected. Many species can in most cases be readily identified in the living condition, but in cases of doubt it is necessary to kill and stain the motile stages (trophozoites) or cysts. Wet smears are satisfactory when many specimens are present; but concentration and culture methods have been devised to aid in diagnosis when the protozoa are few in number. Serological tests have been suggested for the diagnosis of amebiasis, but are not well enough worked out to be of practical use. Only three of the fifteen well-authenticated species of intestinal protozoa are known with certainty to be pathogenic to man—the ameba, coccidium and the ciliate. Most persons with intestinal protozoa do not show symptoms. Diarrhea and dysentery are the most frequent symptoms. Infections of the vagina or urinary tract may be accompanied by the presence of blood and abnormal conditions in the production of mucus. Oral diseases are frequently accompanied by infections with mouth-inhabiting protozoa. The diagnosis of these various diseases should always be made on the basis of the finding of the parasite rather than on the character of the symptoms.—International Clinics, December, 1927.

BOOK REVIEWS

Recent Advances in Tropical Medicine: By Sir Leonard Rogers, C. I. E., M. D., B. S. (Lond.), F. R. C. P., F. R. C. S., F. R. S. London, J. & A. Churchill. 1928. pp. 398.

This is a small book full of useful information, well presented. Here are outlined, free from cumbersome details, the wonderful researches of the workers in the tropics. The reader cannot but admire the brilliant results of men working under adverse climate with few facilities of our modern laboratory. These the editor has gathered and after adding his own observations has arranged in a palatable and assimiable book.

We of the South should particularly feel interested in this work as here are given a well deserved place to the contributions from Bass, Hopkins and Guthrie. Moreover, daily we are meeting with a larger assortment of imported diseases—hence the necessity of finding at a glance the last word in these affections.

In numerous instances vaccine is recommended for treatment and skin tests for diagnostic use. Many new items are found such as: The non-surgical treatment of amebic abscesses with emetin; the combination of carbon tetrachloride and oil of chenopodium in controlling intestinal parasites; the great value of stovarsal in dysentery and of arsenic in yaws; the specific action of tryparsemide in sleeping sickness and the role of the cheopis flea in plague.

The chapter which appealed to the reviewer the most was that on malaria. The intravenous value of quinine over the intramuscular is accepted and the place of arsenic, including the newer preparations, as the great repairer and not as an antiperiodic is clearly set forth. Blackwater fever being an expression of frequently recurring malaria, the author points out the necessity of care and thoroughness in handling the initial attack; he recommends quinine here only when the plasmodia is found in the attack. Spirochete as a direct or indirect cause of the hemoglobinurea is discarded and the theory of an hemolysin being formed in the blood in chronic cases is accepted as tenable.

The book is not only instructive but entertaining and encourages the reader to gather the loose threads of the new theories and to work them into the pattern himself.

NARCISSE F. THIBERGE, M. D.

Crawford W. Long: By Frances Long Taylor. New York, Paul B. Hoeber, Inc. 1928. pp. 237.

In a small country village of Georgia in the early part of the year 1842, a country physician, Crawford W. Long, first used ether for the removal of a small tumor. The discovery of Long was not made known to the world at the time. In 1846 a Boston dentist by the name of Morton, at the instigation of the famous surgeon Bigelow, during an operation at which there was a considerable number of doctors in attendance, used ether to anesthetize the patient. Long's discovery was unknown to the medical world at the time. Morton, working in a large medical center, was enabled to put before physicians in general immediately the report of his discovery. As the result of Long's tardiness and Morton's promptness, the past fifty years has seen much controversy as to whom belongs the credit of priority in the use of ether. It seems definitely settled now that to Long and to Long alone, belongs the honor of the discovery, although there are still skeptics, notably in New England, who would give to Morton the great place in medicine which the discovery of ether as an anesthetic deserves. In order to settle the question definite and for all times, Frances Long Taylor has reinvestigated the whole subject of the first use of ether and brings out in the present volume proof which is so definite that there can be no question that Long really is the man to whom praise should be given. The book is not merely a compilation of evidence put forth categorically and dogmatically, but is an extremely interesting, beautifully written life of the man to whom not only the South in particular but the whole civilized world owes much.

J. H. MUSSER, M. D.

The Mind of the Growing Child: Edited by Viscountess Erleigh. London, Oxford Univ. Press. 1928. pp. 229.

Here is a little book whose sixteen chapters have been written by fourteen different authors, which should be read by everyone who has anything to do with a child, be he parent, teacher or physician.

Such topics as the psychology of infancy, problems in family adjustment, the backward child, problems of school age and the effect of sunlight on the psychology of the child are of paramount importance in the understanding of children. These, among other subjects, are briefly and clearly discussed in language that anyone can understand.

The reviewer is of the opinion that if this book were placed in the hands of every mother and father with intelligence enough to read it, our future generations would indeed be a superior race.

L. VON MEYSENBUG, M. D.

Technic of Child Analysis: By Anna Freud. New York, Nervous and Mental Disease Publishing Co. 1928. pp. 59.

A series of lectures given by Anna Freud, the daughter of the famous Freud, for the purpose of making clear the problems which present themselves to psychoanalysts who deal with children. It is clearly brought out that the methods used for adults are not applicable to the child and herein lies the chief cause for failure in the past. The author in this little monograph gives her methods which are vividly explained by case histories. This book is recommended to all who are interested in child psychology, as it gives much valuable information not only to those who are interested in child analysis, but also to those who come into contact with the problem child.

JULIAN GRAUBARTH, M. D.

Rene Theophile Hyacinthe Laennec: By Gerald B. Webb, M. D. New York, Paul B. Hoeber, Inc. 1928. pp. 146.

The semi-centennial of the death of Laennec celebrated two years ago has resulted in a recrudescence in the interest of the life of this interesting and great character in medical history. One of the most charming and delightfully written biographic brochures that has been published is the account of the life of Laennec by Dr. Gerald Webb. The little book is a true medical classic. It reads so smoothly and so easily that one is stimulated to unbounded appreciation of the work of the author, who has combined historical information of tremendous value with a literary style which is a real pleasure to appreciate.

Hoeber, as usual, has brought out a book which is more than a credit to this artist and superior craftsman in book making.

J. H. MUSSER, M. D.

Clinical Laboratory Procedures: By George L. Rohdenburg, M. D. New York, The Macmillan Co. 1928. pp. 266.

This easily read and comprehensible work is a compilation of simple, yet clinically accurate laboratory methods It contains the routine procedures generally used in the laboratory with several of the newer tests for pathological urine constituents and in addition, the recent serological method of Kahn for the detection of syphilis, and the test of Kramer for the various mineral constituents of blood.

While requiring some knowledge of laboratory procedures on the part of those using the manual, it can hardly be used as a reference work for other than routine procedures.

E. H. LAWSON, M. D.

Collected Papers of the Mayo Clinic and the Mayo Foundation: Ed. by Mrs. M. H. Mellish and H. Burton Logie, M. D. Vol. XIX. 1927. Philadelphia, W. B. Saunders Co. 1928. pp. 330.

This volume contains many valuable articles previously published elsewhere, and here combined into a convenient whole. Any medical man, regardless of his special interest will find here much of value. In reading the articles dealing with experimental work, one admires the efforts of the workers to utilize every conceivable technical aid to clarify the problems under study. A great part consists of large series of cases so presented as to give the most information in diagnosis, prognosis, treatment and pathology. The following list of certain of the articles will serve to indicate the wide scope and nature of the work: The Significance of Infiltration of the Lung; Pulmonary Hemorrhage more frequent in Bronchiectasis than in Tuberculosis; The Importance of Bitemporal Heminopsia in Tumors of the Pituitary Body; Malignant Intracranial Endotheliomas; The Value of Ketogenic Diet in Constipation; The High Degree of Specificity of Microorganisms from Foci of Infections for Special Structures of the Body; The Prevalence of Dibothryocephalus Latum at Ely, Wisconsin, and the possibility of spread to other regions; The Diagnosis, Treatment and Pathology of Splenomegalies, by several authors; Malaria Inoculation in a large series of Neuro-syphilitic Patients; Research of the Lymph Drainage of the Thyroid; Malignant Hypertension; Prevalence of Pellagra in Non-endemic Areas; Value of Germicidal Dyes plus Blood Transfusion in Septicemia; Studies in extra-corporeal Thrombus Formation; Peripheral Vascular Diseases; Many articles on the liver, gall-bladder and choledocus, as to anatomy, physiology, pathological anatomy and pathological physiology; New Conception of the Pathology of Cirrhosis of the Liver; Corrosive Preparations showing the Dilatation and Alteration of the Bile Tree in Different Types of Obstructive Jaundice; Cholesterosis of the Gall-Bladder; Cholecystography; Blood Volume in the Edema of Nephritis and Nephrosis; A Cytological Key to the Diagnosis and Prognosis of Neoplasms.

In addition there are many articles on surgical technique as illustrated by the following: Partial Gastrectomy for Cancer of the Stomach; the results of operation for Duodenal Ulcer; Immediate and End Results of Supra-Pubic Prostatectomy; Results of Punch Prostatectomy; Satisfactory Method of Producing an Eck fistula; Method of Producing Block Anesthesia for Sacral Nerves; Diaphragmatic Hernia; Tuberculosis of the Knee-Joint in the Adult; Anterior versus Latral Approach to Cervical Rib; Surgical Treatment of

Chronic Maxillary Sinusitis; Embolectomy; Surgical Procedure in Obliterative Vascular Disease; Operations of Necessity During Pregnancy; Total versus Sub-total Abdominal Hysterectomy; New Type of Permanent Colestomy.

S. J. LEWIS, M. D.

Les Association Microbiennes: By G. Papacostas and J. Gaté. Paris, France, Gaston Doin et Cie. 1928. pp. 438.

The authors in their introduction call attention to the fact that here and there and scattered throughout medical literature and in text books of bacteriology mention is made of the interesting reaction of bacteria upon each other, but they say truthfully that there exists no completed work dealing with this phase of microbiology, nor has the literature ever been collected which shows experimentally and clinically how various bacteria live and grow with each other or kill and destroy their fellow organisms. In various chapters they discuss symbiosis; antibiosis; the reaction of micro-organisms upon toxins; they deal with synergy and the antagonism between anaerobic and aerobic organisms, and lastly they discuss bacteriologic therapy, the outstanding example of which is the method employed in changing the bacteria flora through the action of B. acidophilus. The small volume is completed with a fairly complete bibliography.

J. H. MUSSER, M. D.

Clinical Medicine: By Oscar W. Bethea, M. D. Philadelphia and London, W. B. Saunders Company. 1928. pp. 700.

Dr. Bethea has endeavored, and most successfully it might be inserted here parenthetically, to prepare a text book which might be said to be midway between the great systems and the very much abbreviated staccatto little hand book for students, bearing in mind all the time that his book was to be written from the point of view that the man in general practice does not have available the resources of large and magnificently equipped hospitals. He incorporates in his work on clinical medicine about one hundred of the most common diseases, again showing his extremely good sense in not attempting to describe disorders which are rare, and with which he personally has had a very small experience. The work, therefore, is written by a man who knows well these diseases which he describes. In praising the book much can be said. The description of disease is concise but thorough. The advice that is given is extremely sane and conservative. Certainly the sections on treatment could not be improved upon without giving considerably more space to this phase of medicine. The directions are complete and thorough, and the prescriptions given as examples are well selected and therapeutically excellent. In criticism of the book but little can be said. Several features which may be merely differences of opinion suggest themselves. In the first place, in dealing with the symptoms it will be seen that it would add to the availability of the book to black face or italicise the main symptoms which are placed in the ordinary font. The same might be said of the treatment in some of the sections. In diseases of the heart we would have liked to have seen the etiological classification recommended by the American Heart Association and coming to general use throughout the country. In the section on diseases of the kidney, it would seem that the classifications of acute nephritis and nephrosis, and chronic nephritis and nephrosis would give the impression to the student and the medical man that nephritis and nephrosis are practically synonymous, which they are not. One would also get the impression that nephrosis is common, which is not. In fact, there are certain well informed medical men who are even doubtful of the existence of nephrosis as an entity. These few remarks may be in the nature of carping criticism. There is so much to praise about the book, however, that it would take too long to detail all its merits, whereas it is relatively a simple thing to point out the occasional defect.

J. H. MUSSER, M. D.

Plaies et Maladies Infectieuses Des Mains par le Dr. Marc Iselin, Ancien interne des Hospitaux, with a preface by Prof. Charles Lenormant, 1 vol., 8 oc., pp. 217, with 65 illustrations. Paris, Masson & Co. 1928. 30 fcs.

This is one of the latest monographs on subjects of outstanding interest in contemporary medical and surgical thought that are issuing periodically from the well known press of Masson & Co. The importance and timeliness of a discussion of the surgery of the hand as it is now evolving as a highly specialized art through the rapid advances of modern scientific surgery, cannot be exaggerated. The enormous increase in the hazard of accident and injury as it affects the human hand is one of the distinctive features of the mechanical and industrial age in which we live. Factories, foundries, mills, railroads, motor boats, motor cars and even the aeroplanes, are all prodigiously increasing the liability to accident and multiplying the opportunities for dangerous contacts between the machine and the human hand. The traumatisms of the hand and their infections have always commanded the attention of practical surgeons everywhere, but perhaps nowhere more than in the United States where the immensity of the country and the activity of this population have stimulated the growth of every conceivable means of speeding commercial traffic, and every mechani-

cal agency for the acceleration of travel, with a proportional increase in the liability to accident and injury. Under the stimulus of the world war and its immense number of casualties, highly specialized surgical units were organized for the treatment of almost every varety of truamatisms, and their mutilating sequelae which in peace, have been followed by still greater opportunities for their deliberate study and observation in the veterans' bureaus and hospitals. These and other factors, particularly the increasing demands of accident insurance and workingmen's compensation, have tended to develop a greater interest and closer study of these manual injuries from the conservative surgeon's view point. It is with the principles and practice that govern this conservative treatment that D'Iselin's book is particularly concerned. It is a small and unpretentious volume, but the author has compressed in the space of its 217 well nourished pages, not only the latest and most reliable information that is obtainable from a thorough digest of the many scattered contributions of the ablest specialists in Europe and America, but he has introduced a number of original methods and technical procedures which give a distinct individuality to the work and call for its attentive study by all those who are concerned in the rehabilitation of the disabled hand when mutilated and crippled by injury or disease.

Dr. Iselin's monograph is the fruit of long and patient researches conducted in the clinic and in the anatomical laboratory, not only in France, but in the United States and Canada. This accounts for his familiarity with the work of the leading American masters and the conspicuous place that is given to the fundamental work of Kanavel, and to the ingenious methods of tendon grafting and plastic repair that have been devised by Sterling Bunnel, Leo Mayer and other American workers who have done so much to recast the old surgery of the hand into its present wonderfully improved mould. If only by acquainting his French colleagues of the distinctive and highly original products of the American surgical workshop, Dr. Iselin has rendered them a real service.

The scope of this book is indicated by the captions to its three divisions. The first, devoted to pure traumatology—wounds or injuries of the fingers and hands, is embraced in seven chapters. The second, deals with the infections—the onychias, felons, palmar abscess and its subdivisions, teno-synovial suppurations in their extension from the fingers to the palms and forearms (six chapters). The third division is devoted to the reparative and reconstructive surgery of the hand in which the orthopedic, plastic and physiotherapic measures for the rehabilitation of the disabled hand, are admirably presented. In all this matter, the anatomy, the pathology, the guiding principles of treatment and the details of technic applied in each case, are elaborated concisely, but with the remarkable precision, method and clarity, that is characteristic of French writers—made still easier of comprehension by the many excellent illustrations that accompany the text. The modernity and up-to-dateness of the matter discussed, is illustrated by the use of a number of terms such as "phalanxization" to designate the reconstruction of a missing finger by the transplantation of a less important digit or toe, to a remaining metacarpal; and by the term "pollexization" (if we may so adapt the French word *"pollicisation"* to English use) to indicate the replacement of a missing thumb by the transplantation of the adadjoining index. All these and other newly-coined terms are still waiting for admission in modern medical lexicons.

The impression gathered from the perusal of this excellent book is that the surgery of the hand has profited so largely by the advances of modern operative technic, that in its reparative and reconstructive phases it has almost attained the rank of a specialty; a specialty that demands for its mastery a fundamental anatomical training and a mechanical ingenuity and resourcefulness, combined with patience, and a nicety of technic that is by no means common to all surgeons, even those who are quite expert in other larger and broader fields. It is particularly gratifying to note that so great a part of the progress accomplished in this surgical domain is justly credited to American sources by a foreign critic so competent and unbiased as the accomplished author of this book. It is hoped that it will not be long before D'Iselin's book will be translated for the benefit of English speaking readers.

R. M.

The Springtime of Physick: By Lawrence D. Redway, M. D. Author, 1928. pp. 68.

This is a very entertaining and humorous small book and should make delightful pastime for one tired of the daily cares of professional duties.

I. L. ROBBINS, M. D.

The Young Man and Medicine: Lewellys F. Barker, M. D., LL.D. New York, The Macmillan Company. 1928. pp. 202.

This is one of a series of twelve books written by representatives of different vocations. Speaking for the medical profession, Dr. Barker, in his usual delightfully sympathetic way, points out to the man about to enter medicine the various pitfalls that beset him and the rewards that will come to him. The book is more than worth while for the man considering the vocation of medicine.

J. H. MUSSER, M. D.

Asthma—Its Diagnosis and Treatment: By William S. Thomas, M. D. New York. Paul B. Hoeber, Inc. 1928. pp. 279.

The features of these 300 odd pages appealing to the reader are its clearness, its brevity and neat arrangement of the matter discussed. Many plates, 6 of which are in colors show distinctly the food and pollen reaction on susceptible patients. The book is strongly stamped with the author's individuality in presenting new thoughts and eliminating much of what is already known and accepted in handling hay fever and asthma patients. All who have done a great deal in this line realize that each asthmatic has to be treated not as a class but as an individual—the tests require study and wide experience. Though the reviewer is not prepared to accept all the new thoughts presented, he wishes to congratulate the author on the work reported and to point out that a book of this character helps the reader to grasp the subject better and to obtain more definite results.

Special parts deserve mention:

(1) Stress is laid on the importance of history taking, here details count; the method of procedure in testing and investigating hay fever and asthamatics is minutely given and the reasons for failure in obtaining cures or improvements are clearly set forth.

(2) Large doses of pollen are recommended for treatment.

(3) The exact place of the skyagraph is clearly pointed out.

The author recommends ascertaining by individual tests which organisms are pathogenic before applying autogenous vaccines in pollen negative patients. Much space is devoted to this phase and also to that dealing with minute tests for egg allergy.

The chapter on pollen treatment is somewhat short but much space is given to ephedrin.

A work of this character serves its purpose well, it affords its reader pleasant, restful reading, incroses the hope of clearing the mystery surrounding some of the refractory asthmatic cases and is a worthy companion to the bibliography found at the end of the book.

NARCISSE F. THIBERGE, M. D.

Baby's Health Day by Day: The Professional Press, Inc. 1928.

A well printed attractively bound volume for the keeping of a diary of the baby's health, with a weekly summary showing a gain in weight and measurement.

J. H. MUSSER, M. D.

Compend of Pharmacy: By F. E. Stewart, Ph. M., M. D., Phar. D., F. A. C. P. 10th ed., revised and enlarged by Heber W. Youngken, Ph. G., Phm. M., Ph. D. Philadelphia, P. Blakiston's Son & Co. 1928. pp. 199.

A Compend of Pharmacy, which has run through ten additions and which was written primarily for the student of pharmacy and drug clerks, so packed with succint pharmacologic information that it should prove of great value on the desk of the average practitioner where he could refer to it as the need arose.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED.

Lea & Febiger, Philadelphia: Modern Medicine, edited by Sir William Osler, Bart., M. D., F.R.S., Volume VI. Constitutional Inadequacies, by Nicola Pende, M. D. The Treatment of Diabetes Mellitus, by Elliott P. Joslin, M. D., N. A.

F. A. Davis Company, Philadelphia: Goiter Prevention and Thyroid Protection, by Israel Bram, M. D.

C. V. Mosby Company, St. Louis: Blood and Urine Chemistry, by R. B. H. Gradwohl, M. D., and Ida E. Gradwohl, A. B. Recent Advances in Chemistry in Relation to Medical Practice, by W. McKim Marriott, B. S., M. D. Diabetic Manual for Patients, by Henry J. John, M. A., M. D., F.A.C.P. Bacteriology for Nurses, by Charles F. Carter, B. S., M. D. Ultra-violet Rays in the Treatment and Cure of Disease, by Percy Hall, M.R.C.S., L.R.C.P.

Williams & Wilkins Company, Baltimore: The Determination of Hydrogen Ions, by W. Mansfield Clark, M. A., Ph.D.

P. Blakiston's Sons & Co., Philadelphia: Hughes' Practice of Medicine, by R. J. E. Scott, M. A., C. L., M. D.

Committee on Drug Addictions, Bureau of Social Hygiene, Inc., New York: The Opium Problem, by Charles E. Terry, M. D., and Mildred Pellens.

Medical Catechism for Students, by Kishinchand M. Hiranandani.